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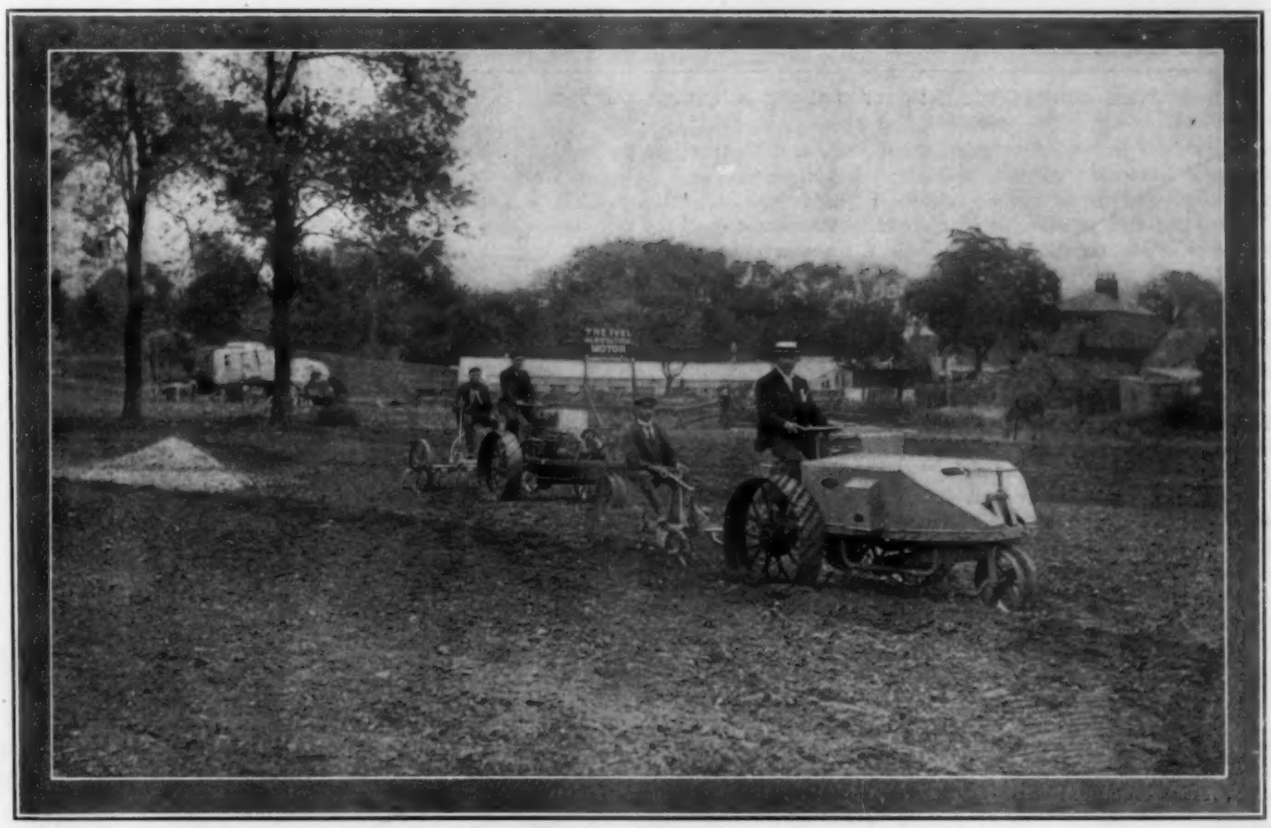
THE AUTOMOBILE

WEEKLY — NEW YORK — SATURDAY, NOVEMBER 21, 1903 — CHICAGO — 10 CENTS

Agricultural Motors in England.

THAT we of the United States are not the only people who appreciate the value of mechanical aids in the work of farming, may be inferred from the photographs accompanying this article, which show a gasoline engine tractor and power plant engaged in some of the commoner agricultural uses. In the large view two machines are shown, one drawing a plow and the other a spring-tooth harrow. In the other two it is shown furnishing the power for a five-knife chaff cutter and attached to a market wagon loaded with a ton of grain for its trip to market.



THE IVEL AGRICULTURAL MOTOR PLOWING AND HARROWING.

Even in this country the use of mechanical power for plowing has made little progress, though this may be due partly to the fact that our agricultural motors are nearly all driven by steam, and the powerful but complicated steam plows are scarcely suitable for use on a limited scale. Curiously, in spite of the low cost of gasoline here, the gasoline motor seems to have made but little progress in farming uses.

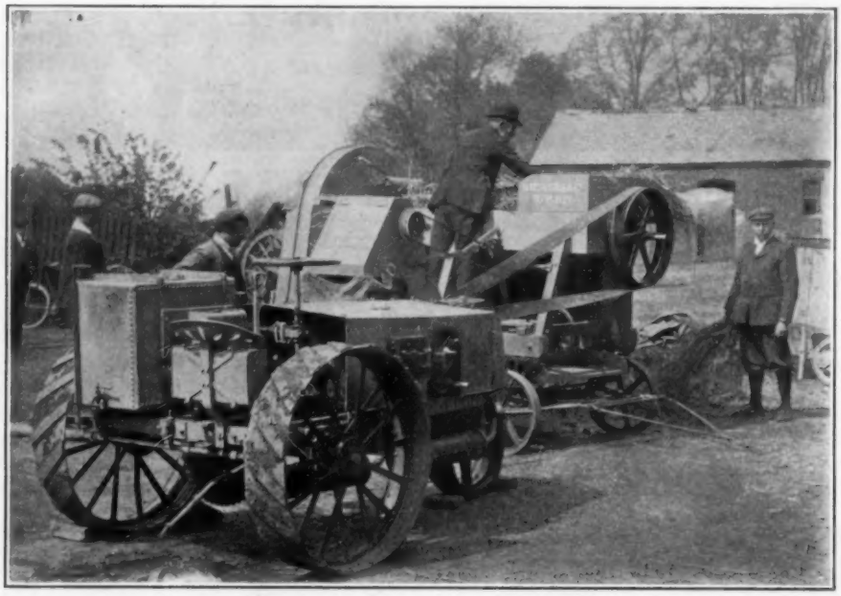
In the machine shown, the objection of high cost is largely overcome, its price being (in England) only $1,500. It is driven by a double-cylinder, horizontal gasoline motor of 10-horsepower, and has a friction clutch for engaging the road wheel drive. Only one forward speed and reverse are used. A pulley on the left end of the motor shaft enables power to be taken off, when the machine is stationary, for threshing, pumping, chaff cutting, grinding corn, or any other temporary use which might otherwise require a stationary motor. Its weight of 2,800 pounds, and its three wide wheels with grips, make it an efficient tractor either on the road or on plowed ground.

According to copies of reports furnished

by the makers, the Ivel Agricultural Motors, Ltd., 45 Great Marlborough Street, London, the machine has made the following records in the classes of service noted:

Six acres of grass cut in 3 hrs. 40 min., using 5 1-2 gallons gasoline; three acres of grass cut in 1 hr. 33 min., using 3 gals. gasoline; 2 1-10 acres of land, with a hard surface, plowed to an average depth of 7 inches in 5 hrs. 50 min., using a double furrow plow and consuming 7 3-4 gallons of gasoline; 19 acres of wheat harvested in 10 hours, using 8 1-2 gallons of gasoline; and a little over a ton of chaff cut to a gauge of 3-8 inch in 3-4 of an hour, at a cost of 7 pints of gasoline.

The machine is used to draw any variety of horse-drawn agricultural machines by simply taking out the pole or shafts and attaching a small spring coupling, furnished with the motor. As is evident from the records just cited, the rapidity of the work is much greater than would be possible with horses.



THE AGRICULTURAL MOTOR DRIVING A STRAW CUTTER.

Auto Line to Pike's Peak.

Duncan Jones, master mechanic of the cog-wheel railroad to Pike's Peak, is booming the interest in his famous railroad to the clouds by the announcement that next season he will make it an automobile route. He claims to have built a 40-horsepower gasoline car, to carry four passengers, which is geared to connect with the present cog system and which will climb 8,000 feet in forty minutes.

The National Association of Automobile Manufacturers at its last meeting, admitted to active membership the Holley Motor Company of Bradford, Pa., and to associate membership the Rose Manufacturing Company of Philadelphia and National Carbon Company of Cleveland.

PROPOSITION TO INCORPORATE THE N. A. A. M.

The National Association of Automobile Manufacturers has mailed to all its members a circular letter proposing the incorporation of the organization under the laws of Connecticut and asking each member to sign and return a blank form of approval and consent. The letter bears the names of all the fifteen members of the executive committee, representing as many of the leading automobile concerns of the country. It states that after deliberations which were instituted some time ago and which have been taken up and carried forward from time to time, as opportunity presented, and after consultation with counsel, the executive committee, at its meeting held August 5, 1903, unanimously determined that there was urgent need that the association be incorporated. Among the more important reasons leading to this conclusion, are:

First, That the present form of organization is awkward and unwieldy for the prosecution of the purposes of the association, a condition which arises chiefly from the fact that the present association is not stamped with any particular legal character, being a purely voluntary combination; and second, that the individual members of the present association stand in an equivocal or to say the least, doubtful legal relation to the public and to each other, with reference to responsibility and liability for any obligations which might arise against the association. When the association shall have been incorporated, the legal character of the association and the legal status of its members will be distinctly defined. After such incorporation there cannot be, in the ordinary course of affairs, and provided the simple rules governing such a corporation are adhered to, any individual liability of its members, and the liabilities of the association will be limited by the amount of the association's assets.

As at present constituted, the association is not, strictly speaking, a partnership; nor is it a corporation or joint stock company. In its dealings with others, as for example, in the making of contracts for exhibitions and the like, it is practically indispensable that the association should have a clearly defined legal being, such as it would have in the character of a corporation. If the association is to enter into any important business relations, or if it is to safeguard its members from personal liability, or if it is to maintain a position of dignity and responsibility before the public, it must be incorporated.

IVEL MOTOR HAULING A WAGON LOADED WITH GRAIN.

It is proposed, therefore, that a corporation be formed to take over the pursuits and assets of the present association and assume all its obligations, adopting, as far as practicable, the present constitution, by-laws, rules and regulations, as well as the name.

After these steps shall have been taken, it is proposed to dissolve the present association.

Hydraulic Regulator for Carbureter.

An odd idea in carbureters is to control the dilution inlet by a valve connected with a diaphragm regulator acted on by the water in the circulating system. The pressure of this water, according to the theory, varies in proportion to the speed of the engine, and with a gain in speed the dilution inlet will be opened more. This idea, which is carried out in the 1904 Napier cars, seems to be an adaptation from the now well-known Krebs carbureter in which a similar diaphragm is used. but with no hydraulic connection. The Krebs diaphragm plays the part of the spring, and is acted on by the engine suction to open the dilution port more or less. Such a device, if correctly proportioned, adapts itself automatically to changes in throttle opening as well as in engine speed, whereas the hydraulic regulator depends on the latter alone.

Detroit Ordinance Enacted.

DETROIT, Nov. 16.—An ordinance to regulate the speed of automobiles in this city will go into effect December 1 It specifies a maximum speed of eight miles within what is known as the three-quarter mile circle, and, twelve miles within the city limits outside that territory. The eight-miles limit also applies to the parks and boulevards. Certain portions of the boulevards and parks may be set apart by the Commissioner of Parks and Boulevards where speeding may be permitted under such regulations as he may see fit to prescribe. Owners of cars must register with the license collector, and must purchase from said collector for $1.00 a tag with the number of the license, to be displayed on the rear of the car. The figures shall be four inches high and three inches in width, and must be arranged on a dark background in a horizontal line with a space of one and one-half inches between each figure. Transfer of ownership shall be reported to the license collector within twenty-four hours after such transfer. Violation of the ordinance shall be punishable by a fine not exceeding $100 for each offense; or in the default of such fine by imprisonment in the Detroit House of Correction for any period of time not exceeding three months.

A prominent automobile dealer of Binghamton, N. Y., is authority for the statement that "Binghamton has 120 automobiles, and not a sign of a club."

Carbureters and Motor Control.

Organs in the Gasoline Motor Vehicle of Which Operators Should Possess Theoretical as well as Practical Knowledge—Contributions Invited.

Everybody admits that the means for controlling and regulating the power development and the speed of an automobile should lend themselves readily to nicely graded adjustments, and that it is highly desirable to have the movements by which the driver exercises the control simple and positive, but as to the nature of the construction and mechanism which best serve this purpose the greatest diversity of opinion obtains. While in close street traffic the brake and clutch system is probably of greatest importance to insure safety and convenience in driving, the method adopted for throttling of the motor has come to be considered the essential point for all-around use of gasoline motor vehicles. The brakes remain the crude last resort for taking up surplus momentum of the car, in both gasoline and steam vehicles, but the really skilled driver wants to use them as little as possible in the city streets, and on country roads not at all. To draw from his motor exactly as much power as he needs at any given time, and no more, represents the ideal for which he strives and which modern constructors and manufacturers are laboring to enable him to reach. That it is reached in the steam car constitutes the special charm of this class of automobiles, and here the throttling problem is no problem at all, because there is a constant reserve fund of power in the boiler which may be drawn upon at pleasure, within liberal limits, so that there is no danger of being stalled if the throttling is too severe. The gasoline vehicle driver has only the flywheel momentum to fall back upon if, for lack of skill or a dependable throttling system, he momentarily reduces the power development too much. If he tries to work too finely he risks a full stop of the car, even if he may save himself a dismount and a cranking by uncoupling the clutch in the nick of time. His best guarantee against unpleasant incidents lies in a perfect throttling system which will permit him to run a 40-horsepower motor at a 1-horsepower development when required and at all intermediate graduations of the power as well; and such a system also secures him the greatest fuel economy, the least vibration of car and machinery, a minimum of repairs, the longest life and the smallest depreciation of his vehicle. No wonder, then, that automobile manufacturers during the past two years have given much attention to rendering the throttling mechanism of the gasoline vehicle equal in efficiency to the much simpler system which suffices for the steam vehicle and have attacked the problem in many different ways, all of them leading to improvements over earlier construction and all very interesting to the student of automobilism, because hardly any forward step was made in the throttling system that did not carry with it improvements in ignition, water-cooling, exhaust and muffling, and even in power transmission, or at least threw new light on these subjects.

EARLY ADVANCEMENT IN AMERICA.

For awhile—in 1898, 1899 and 1900—American constructors were ahead of the world in applying the principle of reducing the admission of vapor to the cylinder in order to reduce the power development and thereby the speed of the vehicle. This principle of "throttling on the admission," which is now rapidly becoming universal, was applied in a number of American machines, with the introduction of "atomizers" and feed valves to take the place of surface carbureters, while the rest of the world were still regulating the power output mainly by timing the ignition and cutting out the spark entirely for one or more cylinders until the car had slowed down. But, unfortunately, those American constructors were applying a correct principle before its time had come, and did not always obtain good results, mostly because the ignition system was then still too unreliable to take care of the ignition of attenuated gas charges, and the workmanship on valves and motors in general was too crude to insure uniform results. There was nothing but theoretical faith to encourage the idea that the car could be controlled essentially through the motor, and so the French cars of that day, depending for speed changes on the manipulation of speed gear levers, spark timing and automatic or hand-controlled "hit and miss" governors—*à tout ou rien*, as the French more appropriately refer to them—ran steadily from Paris to Bordeaux and gained fame, while much more rational American cars, for want of reliable ignition and careful workmanship, were frequently stalled on the roads and were declared inferior in theory as much as in practice. Yet time has upheld the American principle of throttling *vs.* gear changes, vaporizers or atomizers *vs.* carbureters.

RETURN WITH A FOREIGN BRAND.

The latest refinements in throttle control, however, come back to the United States popularly recognized as a new foreign development, because the Euro-

peans, as soon as they saw the unavoidable trend, took up the various methods by which throttling may be accomplished and tried them out with more scientific attention to details and accuracy than our experimenters had given to the subject.

The purpose of throttling being to permit the ready control of car speed over a wide range without resorting to mechanical gear changes and independently of mechanical brakes, such processes as the timing of the spark, the suppression of the spark, the intermittent cutting-out of cylinders by blocking the exhaust and those modifications in power development obtained by creating a greater or lesser back pressure in the exhaust pipe or the muffler, may be considered as belonging to the subject, but among these expedients only the variation of back pressure has a true throttling effect.

The spark timed to be premature or too late for the speed at which the motor is running causes an explosion the expansive force of which either counteracts itself partially—when premature—or is diminished by the smaller initial compression and partly lost in the exhaust tube and muffler; with heating of the latter, poor combustion and objectionable odor as accompanying disadvantages, until the gradually reduced momentum of the car brings about new agreement between the motor speed and the spark timing. Moreover, premature timing is impracticable because its violent retarding effect would increase with diminished car speed and motor speed instead of accommodating itself to it. Nevertheless the spark shifting lever was for a number of years the principal factor relied upon for reducing the speed of a motor below what it should normally be with a full gas charge and given dimensions of inlet and exhaust valves. Variation of the gas charge was used only within very narrow limits, because the proper means had not been found for getting reliable ignition unless the gas mixture was nearly constant in its proportions of vapor and air. Throttling was therefore secondary to spark shifting. But of late the principle has been fully acknowledged that the spark should follow the throttling, meaning that the power and speed of the motor should be regulated by varying the gas charge—mostly in quantity and somewhat in quality—and that the spark should be timed to produce the most efficient explosion at any given motor speed, but should not in itself be used as a speed regulator. Where the throttling system is imperfect, retarding of the spark is still used, however, to reduce speed below the lowest register of the throttle.

Spark Should Follow the Throttle.

The recognition of the principle that "the spark should follow the throttle, and not *vice versa*," marks the close of one stage in the evolution of the gasoline motor vehicle and the opening of another. It marks the transition from a noisy car, incapable of going slowly except under heroic manipulation, to the silent, comfortable gasoline car of to-day and tomorrow, in which the slowest crawl and the highest racing speed are produced by the same identical dynamic factors, developed only in varying degree.

In reality the expression referred to is, of course, more epigrammatic than correct, since the spark does not follow the throttling, but follows the motor speed, which is determined partly by the throttle and partly by the work which the motor has to perform.

By looking into the construction and operation of some of the modern carbureters—this term being still current to denote any device for feeding fuel to a gasoline motor—and the throttling systems employed in connection with them, it is soon discovered that gasoline motor vehicles take rank in the market practically in exact proportion to the range, regularity and accuracy of power control placed at the automobile driver's disposal through the more or less suitable refinements introduced in this vital portion of automobile mechanism.

Varying Compression or Mixture.

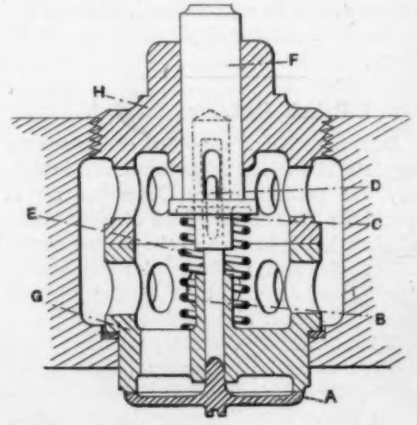
Whether the compression or the composition of the gas mixture is variable, or both are varied concurrently; whether the inlet valves are opened by suction or by geared mechanism, and, when gear-actuated, if the lift of the valve or the duration of fuel admission is the determining factor; whether the action of the suction-lifted inlet valve is varied by varying the suction, through graduated blocking of the exhaust, or by resisting the suction, by means of contracting the admission channel or otherwise; whether the fuel is vaporized and mixed with air before introduced in the cylinder or it is drawn from a nozzle in a spray and the mixture completed by the compression stroke—these, and a few other considerations, are supposed by various constructors to spell a higher or lower pitch of perfection in vehicle control, accordingly as the choice is made, but the automobile-using public at large have not gone deeply into this subject—not deeply enough, in fact, to avoid little troubles in the operation of their vehicles due to changes in temperature, humidity, altitude and similar factors; troubles which affect the ignition and combustion also and which may be easily obviated by the operator who understands the principles involved in carburation and the mechanism of the carbureter in his particular car.

Now that the season is approaching when the climatic differences from day to day mean a good deal for the owner's or operator's comfort or discomfort, accordingly as their effect is well or poorly understood, contributions from experienced constructors and chauffeurs on this subject, accompanied by cross-sectional drawings of the carbureters which they feel competent to discuss, would meet a public want. Such discussions—necessarily technical in nature—appeared frequently about one year ago in French publications and doubtless did much to unify convictions as to the best construction and to save trouble for owners of cars.

The Automobile will pay a fair remuneration for articles dealing in a practical and theoretical fashion with the questions relating to motor control as these questions present themselves to the operator of any one car in common use in this country.

Novel Inlet Valve Control.

It is generally understood that the automatic inlet valve adapts itself better than the mechanically-operated valve to speed variations in a high-speed motor, for the reason that the inertia of the inrushing charge holds it open a little after the suction stroke is completed, and therefore a fuller charge is taken in at high speeds. Offsetting this, in part, are the facts that when the engine is throttled down closely the action of the valve is a little uncertain, and that the automatic valve can stick



The Autocar.

PHILLIPS INLET VALVE SYSTEM.

when the cam-lifted valve will not. Again, it seems probable that the suction required to overcome the spring is not, at least not wholly, compensated for by the rush of the charge at the end of the stroke.

An attempt to combine the advantages of both valves is made in the design shown in the sketch. It is the invention of Robert E. Phillips, an English engineer, and consists essentially in employing cam action, not to open the valve, but to relieve the spring tension on it. *A* is the valve, whose stem *B* is unchanged except that its key *D* is deeper than usual. The sleeved washer *C* is a loose fit on the stem, and the spring *E* is somewhat stiffer than usual. The plunger *F*, acted on by the cam through rods and levers which can readily be attached to the ordinary engine, is slotted so that it clears *D* at all times. Consequently it acts merely to compress the

spring, allowing the valve to fall or be sucked open freely. *F* is timed to return exactly at the end of the suction stroke; but the valve may be held open—against the spring—longer by the rush of the charge.

The two bushings *G H* are of course special fittings for this valve. The operating levers referred to are carried by brackets bolted to the cylinder and head, and may be arranged so that the exhaust cam can be utilized to work *F*.

The list of automobile licenses issued by the city clerk of Cleveland is one of the most important records, from the standpoint of the public, that is maintained in that office. It contains a list of nearly 1,100 owners of vehicles, with their addresses and make of machines. Some one is copying the list practically all the time, and dealers and manufacturers of automobiles as well as dealers in material and clothing of all kinds, are using it for circularizing; in consequence the mail received by automobile enthusiasts is getting to be much larger than that of the average citizen.

PLANS FOR EAGLE ROCK HILL CLIMB THANKSGIVING DAY.

Price instead of weight is to be the basis of classification for the gasoline cars entered for the third annual hill climbing contest to be held on Thanksgiving Day, November 26, on Eagle Rock Hill, West Orange, by the Automobile Club of New Jersey. The gasoline machines are to compete in four classes, as follows: first, cars listing at less than $1,000; second, listing at $1,000 to $1,800; third, $1,800 to $3,000; fourth, selling for more than $3,000. In addition to the four events for these classes there will be an open race for gasoline cars of all prices and weights, one for steam cars and a third open for electrics. The classification by price is believed to be fairer than the previous method of dividing the cars by weight or horsepower. All gasoline cars entered for the open class will be required to carry the full number of passengers for which the cars are built.

Entries have been received in all classes, from the low-priced American runabout to the costly, high-powered foreign cars. Free storage room at 22 Railroad Place, East Orange, for the night of November 25 has been secured for the accommodation of the entries from New York, as the start will be made promptly at 10 A. M. the following morning.

Every precaution has been taken this year to make the contest a complete success. Consent for the contest has been secured and police arrangements already made. The American Automobile Club's Mors timing instruments will be used for timing the cars.

Eagle Rock Hill, situated in West Orange, at the end of the West Orange street car line from Newark, became famous in the days of bicycling as the scene of many tests of hill-climbing ability of the pedal pushers, and for two years past as the scene of the annual Thanksgiving test for motor cars.

The course, which is nearly one mile long and winding, with two sharp turns, has a maximum grade of 13 per cent., with an average gradient of perhaps 7 per cent. The gradient varies considerably, but there is a long straight stretch at the start where

At the Start. Near the Top. STAGES ON EAGLE ROCK HILL, WEST ORANGE, N. J. The First Turn. The Last Turn.

speed can be gathered for a flying start. The surface of the road is of good macadam hard, smooth and broad. It has been in excellent condition this fall, and if there is no rain on Thanksgiving Day, as there was last year, the road should be safe and fast.

The best time in last year's contest was made by W. J. Stewar, who climbed the hill in a Locomobile steam car in 2:58 3-4, and the best time in the gasoline class was made by O. P. Nestman in a Stevens-Duryea in 3:45.

More than fifteen entries had been received early in the present week for the contest, and the list was growing rapidly. Gold and silver medals instead of cups are to be awarded as first and second prizes.

MOTOR BOATS IN TRADES CARNIVAL AT JACKSONVILLE.

JACKSONVILLE, Fla., Nov. 12.—The interest felt here and generally in power boats was fully revealed here last week during the Trades Carnival, held from November 2 to 7, inclusive. First and second prizes were offered for the two fastest boats and for the two best decorated launches.

More than twenty-five motor boats passed in review before the reviewing stand, before the races came off. The docks, windows and all available spaces were lined with interested spectators.

The handsome yacht *Roamer*, of New York, took the committee of awards out into midstream and anchored at a point where all the boats started and finished. First prize for the best decorated boat was awarded to Charles A. Clark, owner of *Peg*, and second prize to B. W. Sperry, owner of *Julia Ann*.

The racing course was laid out with stake boats, and the launches started from the committee yacht at the firing of a gun to cover a course of six miles. First prize for speed was won by *Lee S*, owned by D. Thomas Sheridan, and second prize by P. Le Engle, owner of *Nadia*. The *Lee S* is 45 feet long and 7 feet beam, and is driven by a 16-horsepower Globe motor, while the *Nadia* is 30 feet by 7 feet and fitted with a Murray & Tregurtha 10-horsepower engine.

TROUBLE BETWEEN TWO NATIONAL ORGANIZATIONS

American Automobile Association Starting Under New Auspices Anticipate Keen Rivalry from American Motor League.

POTTER NEITHER DENIES NOR AFFIRMS

Unfortunate publicity has from time to time been given in the metropolitan dailies of New York to rumors that only foment ill feeling and antagonism between the American Automobile Association and the American Motor League. The latest outbreak of this sort is over the question of the control of automobile racing, which it is alleged the League is about to take some important steps to gather into its own hands. Last summer the reports current were that there was to be only one national automobilists' organization, and that the Motor League would absorb the A. A. A.

Regarding the latest rumor, A. R. Pardington, chairman of the racing board of the A. A. A., said: "I have heard that the League intended to make an effort to gain the control of racing, and it is undoubtedly so. There have long been indications that the A. M. L. would like to take a hand, but it may find it difficult to realize this ambition. The A. A. A. membership comprises the clubs which promote the meets, while the A. M. L. is composed of individual members. There are nineteen clubs now, the New York State Association will add fifteen more, and before the annual meeting we shall have ten clubs to add to the nineteen. The New York Association may not be in line before the meeting. We have lately added the San Francisco, Los Angeles, Columbus and Washington clubs, and Pittsburg and Boston will be among those that will join at an early date. The individual membership is growing steadily, and now that we have a recruiting office in charge of Secretary Gillette, we shall gain rapidly in membership in that direction. True, the A. A. A. has been dormant this year with the exception of the racing department, but it is not so now and is working steadily to take that position which is its right in the automobile field. As a body, it appeals to the largest number of tradesmen, makers, club men and individuals."

Chairman Pardington said that the organization had been in charge of racing since its organization and had gained recognition as the controlling body in America. The racing board, he said, was appointed when the sport was comparatively new; the men selected then were engaged in vocations in various parts of the country; there have been many changes since then; members of the board have changed their places of residence and it was found necessary to make changes in the personnel of the board in order that trade influence might not enter into the decision. The board, he thought, should be composed of men who have no trade affiliations and who are willing to devote their time to the sport without remuneration and who will follow up the sport with enthusiasm. "There are such men and they will be found. One thing is certain, in a body of nearly 3,000 members, all of whom are automobilists, we have them."

C. H. Gillette, the new secretary, when seen at his office at 31 West 42d Street, New York, said: "Two bodies in control of one sport is out of the question. The A. A. A. is playing a lone hand in the game now and will continue to do so. The A. A. A. has an active campaign ahead of it, and the A. M. L. will find that gaining control of racing is as hard as making water flow up hill. The A. A. A. is the recognized body. It has not been criticised, has acted sensibly all the time, and there should be not the slightest reason for any change."

Secretary Gillette says he finds that hardly 5 per cent. of the automobilists belong to the clubs, and he is devoting a great deal of time to building up the individual membership. The list of new members is growing rapidly and in a short time he will start on a long trip to call upon the trade, the clubs and others who are interested workers in the cause of motoring and expects to add several thousand members to the A. A. A..

President Isaac B. Potter, for the American Motor League, says that although the League constitution provides for a racing committee, as it has always done since the organization of the A. M. L. eight years ago, no move whatever has been made toward usurping the control of racing. The question has not even been talked about by the board of officers nor been the subject of correspondence. As the board of officers has not placed itself on record regarding its intention toward the racing question, the president could not, of course, guarantee that the A. M. L. would not some time make an attempt to secure control of the sport, as the League is not governed by one man. The only time it has taken any action in the racing question was when it passed a resolution expressing its disapproval of racing and speed trials on the public highways.

American and Foreign Automobile Fixtures for the Winter.

1903.
Dec. 10–25.—Sixth Annual International Exposition of Automobiles and Cycles at Paris. Grand Palais. Automobile Club of France.
Dec. 31.—Closure of Entries for 1904 Gordon-Bennett Race.
1904.
Jan. 16–23.—Fourth Annual Automobile Show, New York, Madison Square Garden. National Association of Automobile Manufacturers, Madison Square Garden Company and Automobile Club of America.
Jan. 23–Feb. 4.—International Automobile Exhibition at Brussels.
Jan. 25–Feb. 6.—Racing Tournament at Daytona, Fla. Ormond-Daytona-Sea Beach. Florida East Coast Automobile Association.
Feb. 6–13.—Fourth Annual Automobile Exhibition, Chicago. Coliseum Building. National Association of Automobile Manufacturers and Chicago Automobile Club.
Feb. 12–24.—Second Annual Automobile Exhibition. Crystal Palace, London. Society of Motor Manufacturers and Traders.
Feb. 15–20.—Third Annual Exhibition at Detroit. Detroit Light Guard Armory. Tri-State Automobile and Sporting Goods Association.
Mar. 6–12.—Second Annual Buffalo Automobile Show. Convention Hall. Automobile Dealers' Association of Buffalo.
Mar. 14–19.—Third Annual Automobile Show, Boston. Symphony Hall. Boston Automobile Dealers' Association.
Mar. 17.—Start of Touring Trials, Paris to Rome organized by La France Automobile.
Mar. 19–26.—Motor Car Exhibition, London. Agricultural Hall Cordingly & Co.
Mar. 20.—Opening of Automobile Festival at Nice, France.
Mar. 21–26.—Fourth Annual Washington Automobile Show. Washington Light Infantry Armory. Washington Automobile Dealers' Association

Mr. Potter says there has heretofore been harmony between the two organizations, that there is ample work in the automobile field for both and that he deprecates any movement or talk that will create antagonism. He believes that not more than 10 per cent. of automobilists are greatly interested in racing, and that a much smaller percentage are members of clubs, and it is from the ranks of the individuals that the A. M. L. draws its recruits. New members are joining the League now at the average rate of half a dozen or more per day and among the members are now numbered many men prominent throughout the country as leading business men.

Although Mr. Potter points out that the constitution of the A. A. A. does not provide for a racing board, and that under its constitution and by-laws there might be a racing board one year and none the next, he said that the Motor League is entirely willing that the A. A. A. should continue to control racing, as the League has other and more useful work to do. "The association has already had two constitutions, and its constitution to-day is very imperfect and anomalous. When Mr. Butler was secretary he and I were very friendly. He used to come down to my office and we would have a pleasant chat. I even told him that I would be very glad to go to his office and go over the constitution of the A. A. A. and help him draft a new one, giving to the work all the benefit of the experience I have had in this line.

"When the American Automobile Association was organized at Chicago two years ago, its constitution provided that it was to be an organization of clubs only, and it was not until last June, after the Motor League had begun to gain members in large numbers, that the A. A. A. voted to amend its by-laws, at a special meeting called for the purpose, so as to make eligible to membership individuals who are unaffiliated with any club.

"The trouble with an organization of clubs only is the well-known inactivity of the majority of the members, who leave all the work to be done by three or four real enthusiasts, and the lack of direct benefit to the individual from association. When it comes to the question of paying the annual dues to the association in a club of 200 or 300 members, some one is likely to get up and say, 'I would suggest that we put that money into a new billiard table,' or some other clubroom furnishings.

"Now, one-third of every dollar received in annual dues and renewal fees by the Motor League is returned every quarter to the State divisions in the States from which the dues are received, and one-half of the balance is divided among the local boards of consuls and League clubs in the State, the money so divided to be used solely to advance the League work and to be properly accounted for. The League has not yet a single paid officer. We need a secretary, who should be paid a salary, but the League has no money for that yet.

"The objects of the League are very clearly and definitely stated in the second section of the Constitution, and in accordance therewith we are now appointing official League repair stations which agree to grant a 10 per cent. discount to League members, official hotels, sending out road sign and guide boards, preparing route books for touring, compiling a book on legal decisions affecting the road rights and liabilities of automobilists, the technical committee is preparing a hand book of hints for the avoidance of roadside troubles and how to make emergency repairs.

"The plan of organization and the object and policy are practically the same as in the League of American Wheelmen."

Baker's New Electric Surrey.

The Baker Motor Vehicle Company of Cleveland has completed experiments on an electric surrey and will include a vehicle of this type in its line for next year. As is the rule with this company's productions, great care has been used to reduce the weight as much as possible, allowing a good margin for safety, and all working parts have been designed for a minimum amount of friction. The car weighs 1,800 pounds, and the motor used is rated at only 1 1-2 horsepower, a startling commentary on the efficiency of the electric motor when one considers the 10 to 20 horsepower gasoline motor that would be used on a car of this weight. Walter Baker, who designed the car, describes it as practically two standard Baker phaetons in one. The weight is double, the battery is twice as heavy, and the motor twice as large as in the standard car. The principles of construction differ radically from those of the standard Baker. The motor is suspended by steel straps in front of and between the two front wheels, the front axle being arched to give space for the end of the motor. The motor is a standard Elwell-Parker automobile motor and the casing covering it is spherical, giving a very neat appearance from the front. Power is transmitted by a flexible shaft direct to the rear axle. The bevel gears and differential gears are enclosed by a spherical covering made integral with the axle covering. The battery consists of twelve cells of Gould accumulators weighing 600 pounds and having a capacity of from 175 to 200 ampere hours. The entire battery is placed under the forward seat, and it is claimed it is sufficiently large to give the car a radius of forty miles with level roads. One advantage of placing the motor in front is that any drip from the battery can not reach it. It has been found by some manufacturers that where the motor is placed at the rear the acids from the battery have a tendency to eat the insulation and cause short circuit troubles in the motor. The working parts are suspended from a hickory frame strengthened with steel plates and truss rods. The wheels are thirty-six inches in diameter, front and rear, and fitted with four-inch Palmer single-tube tires. The springs are five leaf, forty-four inches long and two inches wide. The wheel base is seven feet. All wheels are fitted with the American Ball Bearing Company's ball bearings and, as may be imagined, the car is noteworthy for its light running and easy riding qualities. It has been figured that the draw bar pull is about fifteen pounds per ton. There are three band brakes, one on each rear wheel, either working independent of the other, and the third operating on a wheel on the transmission shaft. The first model is fitted with wheel steer, but the side lever steer will probably be fitted as standard, as Mr. Baker believes this type is more satisfactory for a car whose maximum speed is only twelve miles an hour. The finish of the car is up to the usual Baker standard. The fenders are very wide and are attached in the center by S steel sections forming a step for both front

NEW MODEL BAKER ELECTRIC SURREY

and rear seats. The French hood gives the car a rakish appearance, but beyond that it is useful only as a receptacle for tools and lunch. The company has not yet decided on the price of the car.

The Wolverine Touring Car.

This new car has a 15-horsepower double-cylinder motor mounted crosswise under the hood with direct drive through a bevel gear shaft to the differential on the rear axle. The line axle is of 1 1-2-inch solid steel turning in a 2 1-4-inch casing provided with an automatic oiling attachment having sufficient capacity for several weeks. The motor is carried on a channel steel cradle that hangs from the main frame. With 5 3-16-inch bore the motor develops

THE WOLVERINE TOURING CAR.

17 1-2 horsepower brake test running at 700 revolutions per minute. It has a minimum speed of 150 r. p. m. and a maximum of 1,400. In actual road tests, it has driven the car twenty miles an hour at 240 revolutions. The carbureter automatically regulates the air intake as the speed of the motor is increased or diminished. Each cylinder has its separate inlet pipe, and each its own exhaust pipe connected to the muffler. Jump spark ignition is used, and is automatically controlled by the same lever that regulates the gas feed, which lever is placed on the steering column where it is within easy reach. The engine is oiled from an automatic sight-feed lubricator on the dash. It is water cooled, a large radiator being carried in the front of the hood. The pump is driven from the main shaft by a two-to-one gear.

Sliding gears afford three forward speed changes and one reverse. They run in an oil bath. The drive is direct on the high speed. One clutch lever and one change gear lever control the drive, with one foot pedal and one brake pedal.

An unusual feature of construction provides space under the raised floor of this tonneau portion of the body for a spare tire, rain covers, rain coats, and miscellaneous articles. Access to the compartment is provided by a narrow drop door just below the rear door of the tonneau. The car seats five or six adults, is upholstered in leather and finished a dark maroon.

The frame is of 3 by 1 1-2 by 1-4 inch angle steel mounted on full elliptic springs at the rear, 36 inches long by 2 inches wide. The wheels are of artillery pattern, fitted with 30 by 3 1-2 inch Diamond detachable tires. The wheelbase is 82 inches and the tread 56 inches. The car has Timken roller bearings throughout and Hussey "slide-up" steering wheel.

The Wolverine car is made by the Reid Mfg. Co., Detroit, Mich.

St. Louis Car in Endurance Run.

Though late justice is only little better than none, the St. Louis Motor Carriage Co., makers of the "rigs that run," naturally desire to have an error corrected which slipped into the semi-official reports of arrivals and departures of cars in the recent Endurance Run from New York to Pittsburg. According to these reports as published in table form in THE AUTOMOBILE of October 24, there was no record of the arrival of the staunch and serviceable St. Louis car at Cleveland, Youngstown or Pittsburg, while the fact was that it arrived on schedule time in all of these places, thus bearing out the well-earned reputation of this manufacturer, staked, as it was in this instance, on a single vehicle. The recorders for the Manufacturers' Association made up for their omission in the first hurried compilation, by according the car a certificate in the final distribution of awards, as reported last week.

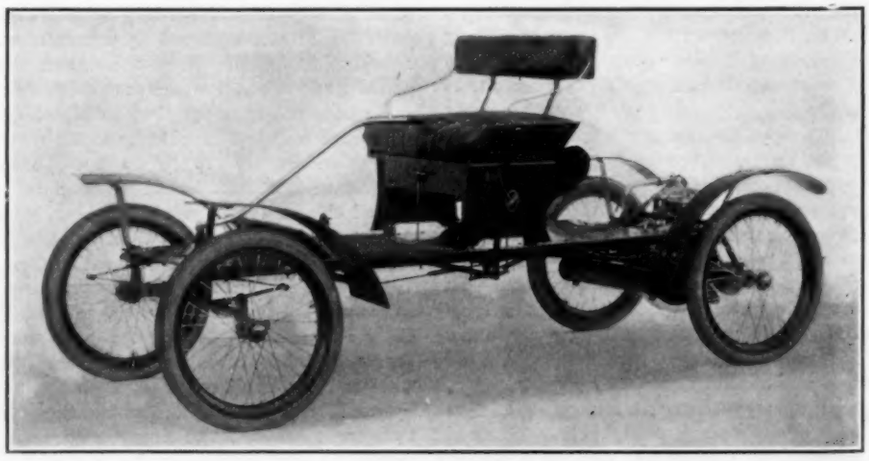
The 1904 Orient Buckboard.

The little motor Buckboard that attracted so much attention at the Madison Square Garden show last winter, where it was introduced to the public by the Waltham Manufacturing Company of Waltham Mass., has been improved for the coming season by the addition of a two-speed mechanism that increases its hill-climbing ability so that the Buckboard can mount any grade on public roads, and enable the operator to drive slowly and carefully through crowded streets, over rough ground and through mud. Noiselessness of operation has been secured by laminating the large gear with fiber and equipping the machine with a better muffler.

The rigid construction of the rear portion has been relieved by springs, which, in addition to the full elliptic springs at the front and the great flexibility of the spring platform, give the easiest possible action at the seat. A spring cushion has been added to the seat back and the seat cushion improved in quality. The seat itself has also been made wider.

The strap starting device for the motor has been discarded and a starting crank provided. The carbureter has been improved and is more compact and reliable. The platform is two inches higher from the ground and the hickory reaches are heavier. The mud fenders are firmly attached, so that they will not work loose, and all bolts and nuts are secured against unscrewing. Goodrich single-tube tires are fitted. Specifications of the new Buckboard are as follows: 4-horsepower; speed, 30 miles an hour; length over all, 106 inches; width over all, 48 inches; weight, about 500 pounds.

The Waltham company is making preparations for the production of a large num-



THE 1904 ORIENT BUCKBOARD.

ber of these little four-wheelers this winter and announces that it will be in position to supply them promptly in January.

Good Run in a Toledo Car.

Arthur S. Lee, of Providence, R. I., accompanied by two friends, made a very creditable run from Cohoes, N. Y., to Providence, on Thursday, October 29, in a two-cylinder Toledo touring car. The start was made at 7:45 o'clock A. M., and Pittsfield, Mass., was reached at 11:50. The party left Pittsfield at 12:45 and arrived at Springfield at 5 o'clock P. M. Leaving Springfield at 6 o'clock and going by way of Worcester, the tourists reached Providence at 11:45 P. M. There was not a single accident on the entire trip, though much of the route traversed was over roads alternately very hilly and deep in sand. The only stops made were for gasoline and for luncheon, save that a few stops were made to inquire the way. For the entire trip of about 205 miles, Mr. Lee states, the gasoline consumption was but twelve gallons.

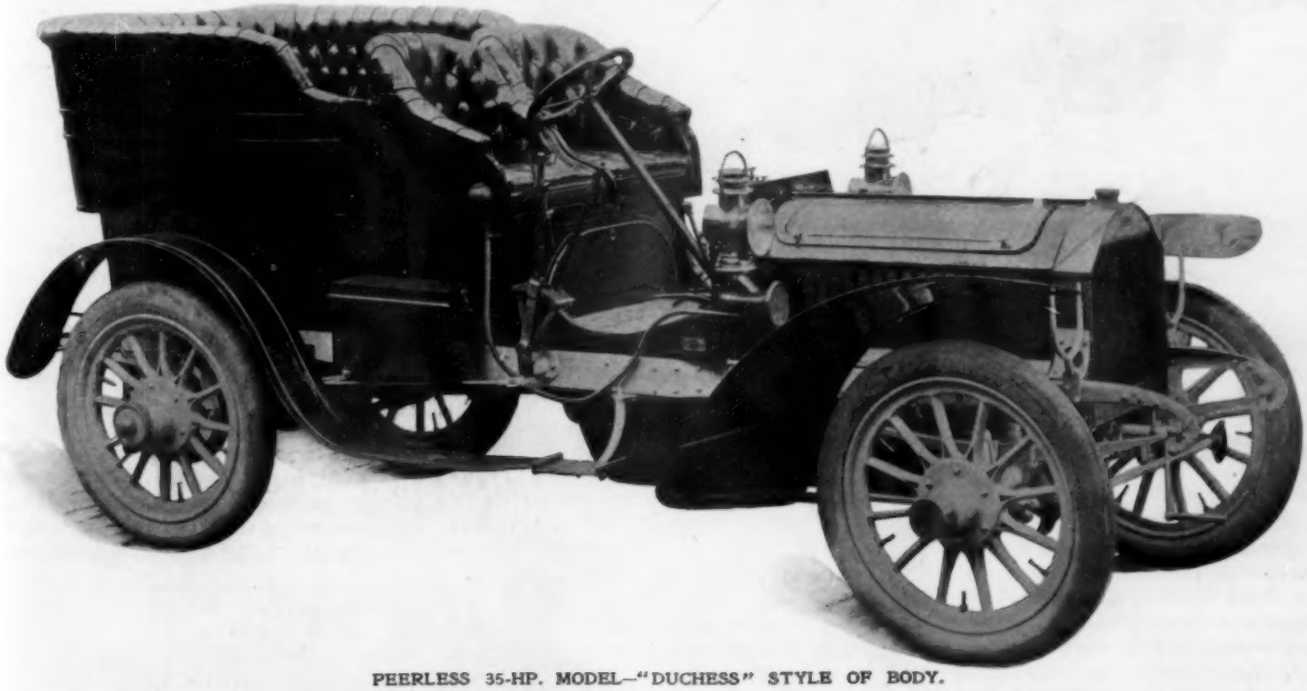
The factory of the Winton Motor Carriage Company is about up to full force on parts for 1904 vehicles. The force of 700 men employed last year has been increased to nearly 1,500. The equipment of machinery has been more than doubled, and with the organization now perfected, it is figured that the plant will turn out between January 1 and May 30, 1904, at least 1,500 vehicles, or an average of 300 a month. This year the Winton company shipped 850 touring cars of the $2,500 class. Three car loads were shipped to Mexico a few days ago, closing out practically every car in the factory.

The Peerless 35-HP. Models.

The Peerless Motor Car Company of Cleveland is getting out a catalogue describing the details of its 35-horsepower car for 1904. The principles of construction in this car follow very closely those of the 24-horsepower Peerless which was described and illustrated in detail in the October 24 issue of THE AUTOMOBILE, but, of course, the 35-horsepower car is larger, heavier and roomier than the 24-horsepower. The motor is of the vertical four-cylinder type suspended in front on an aluminum sub-frame and the cylinders are mounted in pairs instead of individually, as in the 24-horsepower car. The cylinders are 4 5-8 by 5 1-2 inches and have a radius of action from 150 to 1,200 r.p.m. Both the intake and exhaust valves are mechanically operated from two half-time shafts driven by fiber gears from the crankshaft. The shaft is one piece and four throw. A forced feed sight lubricator on the dash supplies oil to the cylinders, the crankshaft bearing reservoirs, and to the crankcase, from which it is splashed to the crank pins, wrist pins and valve cams.

In addition to the standard jump spark ignition this model has an accessory make-and-break system, thus giving the operator an extra method of ignition in case of difficulties. The change from one ignition to the other can be made from the seat while the car is running. The jump spark ignition is induced by vibrating coils, and current is taken from a set of dry cells or from a storage battery, both of which are supplied. Contact is through an enclosed commutator. The liability of fouling the spark plugs is reduced to a minimum, as they are on the opposite side of the engine from the exhaust and are directly in the path of the fresh incoming gases. A centrifugal pump circulates the water and is driven from the exhaust valve shaft. The speed of the motor is regulated by a governor attachment on the intake valves. The governor is operated by a foot pedal. Through this feature, sudden spurts of speed are instantly possible. The car can be operated on "high speed" at a rate varying from six to sixty miles an hour without changing the gears. The hood is of the Mercedes design and folds back, completely exposing the entire motor. The radiator is of the honeycomb type and cooling is assisted by a fan operated by a belt from the motor shaft, causing a continuous circulation of air while the motor is running.

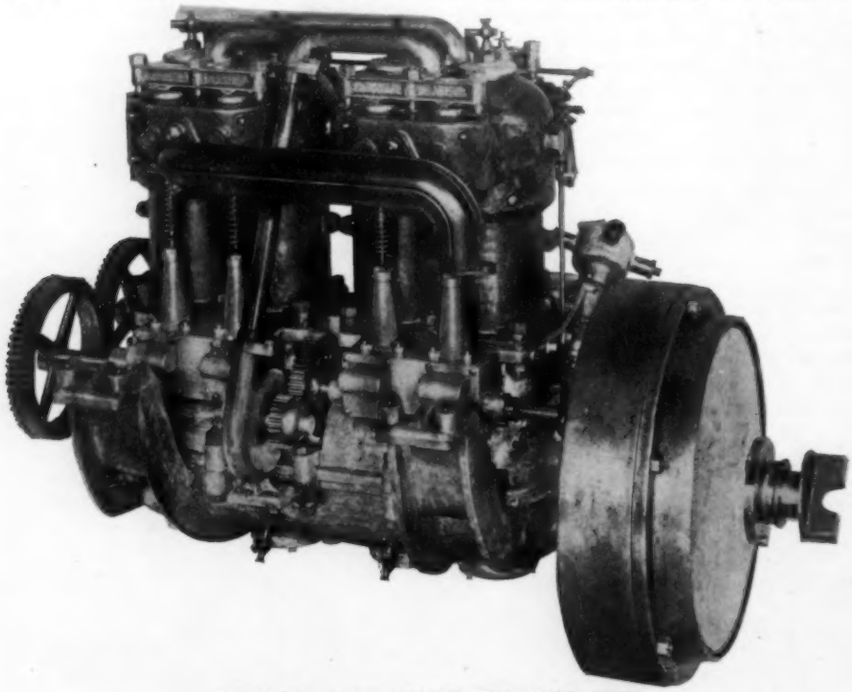
A self-contained cone clutch within the flywheel connects the motor with the driving mechanism. The transmission is of the sliding gear system, but it has four speeds forward and a reverse instead of three, as in the 24-horsepower car. All of these speeds are operated by one lever. In operating the speeds the lever has a fore and aft and a transverse motion. On high speed the motor is connected direct to the rear axle with no gears in use, while on the other speeds only those gears actually at work are in mesh. The strong feature claimed for this system is that from "idle point" any gear can be thrown in without passing through any other gear. The gears and shafts are of course larger and stronger than heretofore, to allow for the increased power of the motor. The change-speed mechanism is fitted with an automatic interlocking device which prevents the shifting of the gears unless the cone clutch is disengaged, and the clutch can not be again engaged until the gears are properly meshed. Power is trans-



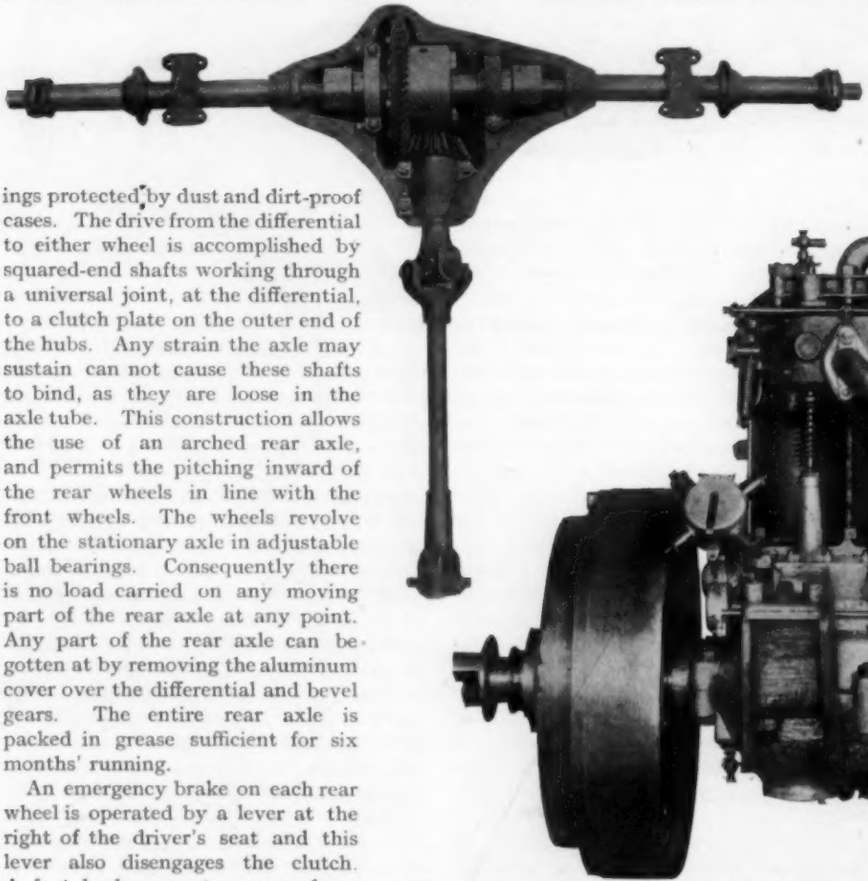
PEERLESS 35-HP. MODEL—"DUCHESS" STYLE OF BODY.

mitted from the speed gear case to the rear axle by means of a telescopic flexible shaft, which compensates for all strains in the frame and play of springs. The bevel gear drive system is mounted on ball bearings protected by dust and dirt-proof cases. The drive from the differential to either wheel is accomplished by squared-end shafts working through a universal joint, at the differential, to a clutch plate on the outer end of the hubs. Any strain the axle may sustain can not cause these shafts to bind, as they are loose in the axle tube. This construction allows the use of an arched rear axle, and permits the pitching inward of the rear wheels in line with the front wheels. The wheels revolve on the stationary axle in adjustable ball bearings. Consequently there is no load carried on any moving part of the rear axle at any point. Any part of the rear axle can be gotten at by removing the aluminum cover over the differential and bevel gears. The entire rear axle is packed in grease sufficient for six months' running.

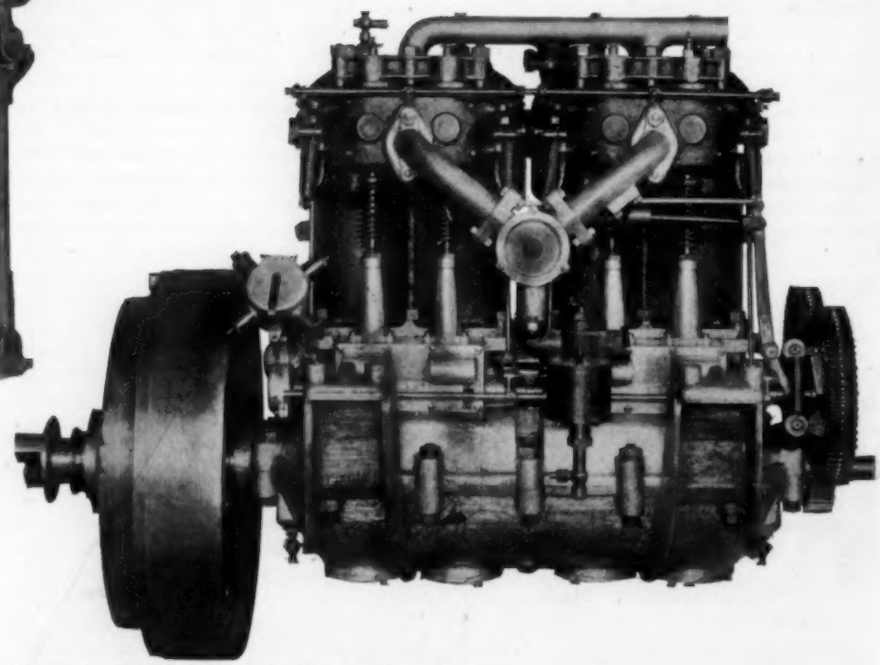
An emergency brake on each rear wheel is operated by a lever at the right of the driver's seat and this lever also disengages the clutch. A foot brake operates on a drum on the driving shaft and also disengages the clutch. The lever brake is applied by pulling back instead of pushing forward. The steering gear operates on the nut-and-screw principle and the direction of the front wheels can not be changed by contact with obstacles. The frame is of pressed steel and is considerably narrower in the front than in the rear. The wheelbase is 102 inches. The wheels are thirty-four inches in diameter, of the artillery type, and fitted with 4 1-2 inch clincher tires, front and back. The hubs are fitted with ball bearings and the spokes are of hickory. Several varieties of bodies will be furnished. The "King of Belgians" type is built of aluminum, while the "Belgium" body is a close reproduction of the former in wood. The "Duchess" is a special aluminum body.



PEERLESS 35-HP. MOTOR—EXHAUST SIDE.



BEVEL GEAR SHAFT AND HOLLOW REAR AXLE.



PEERLESS 35-HP. MOTOR—CARBURETER SIDE.

Forecast of Rambler 1904 Models.

The Rambler line of cars for 1904 will include eight models, of which two will be identical with the 1903 product. The six new ones will range in price from $750 to $1,350, and include a single-seat, single-cylinder car, the same with tonneau and with delivery wagon equipment; a two-cylinder car of 14 to 16 horsepower, and the same with tonneau; and finally an *edition de luxe* car equipped with canopy top, rubber side curtains, burled plate-glass swinging front and two willow baskets.

Four-Wheel Drive Co. for Milwaukee.

MILWAUKEE, Nov. 12.—Articles of incorporation have been filed in the department of State at Madison by the Four Wheel Drive Wagon Company, of which H. Theodore Hanson, Lyman G. Wheeler and Charles B. Perry, all of this city, are the incorporators. The capital stock is set at $1,000,000, and the purpose of the company is to manufacture a line of motor vehicles for business purposes. Mr. Hanson, promoter of the corporation, says that it is planned to establish the factory in

Milwaukee, and at the beginning about 200 employes will be needed. He states that the company controls the patents for the entire world for an automobile upon which the power is transmitted to the four wheels from one engine or motor.

Six Cylinders at Last.

A six-cylinder engine, with copper water jackets and all cylinders cast separately, will be a feature of the Napier models for next year. It has been shown mathematically that such an engine, with the cranks properly placed, will be absolutely free from external vibrations other than those due to its reactions from its own explosive impulses. A very smooth-running motor may therefore be looked for. Its main object, however, appears to be to facilitate slow speeds on the high gear, and to further this result the inlet valves are mechanically operated, which is a radical change from previous Napier practice.

Steel Frame Press in England.

The *Automotor Journal* publishes photographs of a large hydraulic press used by Rubery & Co., of Darlaston, Eng., in forming pressed steel frame members. These members are first blanked, then heated to redness, and then flanged up and bent (if the front of the frame is narrower than the back) in one operation. The male die is the upper one. It is attached to the upper portion of the press, which is stationary, supported by four columns, and adjustable for height. The platen to which the female die is attached is forced upward, being guided by the columns aforesaid, by hydraulic pressure. The wings of this die follow the contour of the band, so that the plate is first bent and then flanged by one continuous motion.

Says Muir Was Premature.

The following communication has been received from Frank Briscoe, secretary and treasurer of the Briscoe Mfg. Co. of Detroit, denying that this firm intends to manufacture business automobiles.

Editor THE AUTOMOBILE:

I was considerably surprised to see in a recent issue of your paper an illustration of Mr. Muir's steam street sweeper; also the effusion by Mr. Muir himself.

I am very sorry you paid any attention to this, for the reason that this syndicate was but a few of us here who chipped in in order to demonstrate whether Mr. Muir's ideas on a steam street sweeper were feasible or not. It was not and it is not the intention of the parties to go into the automobile truck or delivery wagon business.

Up to the present time it has not yet been demonstrated whether this street sweeper will work or not.

FRANK BRISCOE.

Detroit, Nov. 15.

Evolution of Light High-Speed Motors.

An Explanation of the Principles of Design Entering into the Manufacture of Motors Intended for Automobiles of High First Cost.

BY HERBERT L. TOWLE.

Although the evolution of the latter-day high-speed automobile motor wears superficially the appearance of having been both simple and direct, a familiarity with its history serves to show that the seemingly steady march of its progress has in reality been in the nature of an arduous combat, marked at one or two points by over hasty advance, followed by temporary retreat from position at the time untenable. Speed was not the only point to be conquered, for equally with the slow speed of fifteen years ago ranked low efficiency and clumsy build—the bulky forms, uncertain running, and low pressure of the motors now remembered only in the historical chapters of books on automobile construction.

Gottlieb Daimler and his French licensees, Panhard and Levassor, owed their early pre-eminence in the foreign automobile world chiefly to Herr Daimler's independence in cutting loose from what then seemed conservative practice, and producing what, for its day, was a phenomenally light and fast engine. Because Panhard and the German Daimler company clung a little too long to the hot tube and narrow speed range of this early motor, they nearly lost their advantage when De Dion and Bouton showed what could be done in the way of speed with the aid of the jump spark.

Following the general abandonment of the hot tube came a more or less general recognition of the part played in efficiency by large valve sizes, and a rush to snatch perfection through the utmost attainable motor speed. From piston speeds of 600 or 700 feet, a jump was made, about three years ago, to nearly double these. Extraordinary performances were secured, but the less pretentious arts of lubrication, cooling, and weight distribution had not kept pace. The motors ran themselves into the scrap pile too rapidly, and a reaction followed.

Since then the tendency has been slowly upward again. The design of each part has been made the subject of minute and careful study. Bearing surfaces have been greatly increased. Lubrication, once treated as a trivial detail to be taken up after all else had been provided for, was recognized as an essential part of the engine. The reciprocating parts were made the subject of careful experiment and study, and cut down to such an extreme of lightness that the mechanical vibration of a four-cylinder motor is now a negligible quantity. Materials were constantly improved, and the most stringent requirements imposed as to the tests they should stand before being accepted and incorporated into the motor structure. Meanwhile the compression has been pushed up step by step as the speed increased; carbureters have been experimented with by the hundred; and by grace of compression, mixture, and ignition the mean effective pressure of the best motors has been raised from 60 pounds per square inch to 80, or until scientific men tell us that little more can be looked for with the Otto cycle.

A potent factor in this steady pressure for higher and higher efficiency has been the rule, now two years old, of the Automobile Club of France, restricting the weight of all racing machines competing under its rules to 1,000 kilos or 2,204.8 pounds. To this rule more than to anything else we owe the refinement of design which has cut the weight of motors down from thirty or forty to twenty, fifteen, even ten pounds per horsepower, and which indeed now seems very nearly to exhaust the possibilities of the materials at present available.

In the process by which the modern lightweight and high-speed gasoline motor is evolved from the slow-running and clumsy engine still associated with conventional launch propulsion, the three factors, design, materials, and workmanship, go hand in hand. In the present article the last of these will be taken for granted, and the second, which is directly involved with the design, will be touched on from time to time as those parts are taken up which call for the use of special or unusual materials. In general, the modern automobile designer does not hesitate over any material by the use of which speed may be gained or weight saved.

RECIPROCATING PARTS: THE PISTON.

The first step, then, which must be attended to before all others, is to lighten to the utmost all the reciprocating parts. The inertia forces engendered in these vary as their weight and as the square of their speed; and, even if they be balanced as regards vibrations externally sensible, the jerking of heavy pistons and connecting rods at the end of each stroke is a severe tax on all the bearings, as well as a measurable cause of wasted power. Nothing will take the place of cast iron in the piston, but it must be the hardest iron that can be worked, close of grain and perfectly free from holes. In no other part of the engine is lightness so important as in the pistons and inlet valves, and it is worth while even to risk an occasional breakage rather than

carry surplus metal in them. When the compression space is small, it is usual to face off the piston heads to give an exact surface, this facing cut being of such a depth as to give the least permissible thickness for the head. The writer has found French pistons for single-cylinder high-speed motors, with 100-min. bore, to have heads only 1-8 inch thick, and with merely nominal ribs at that; but this is certainly too thin. A better plan is to make the head, say, 1-8 inch thick in the center, and thicken it to 1-4 inch at the sides, for the diameter named. It should always be flat, never "dished." A thin rib connecting the head with the bosses for the wrist-pin should be added, and all corners given

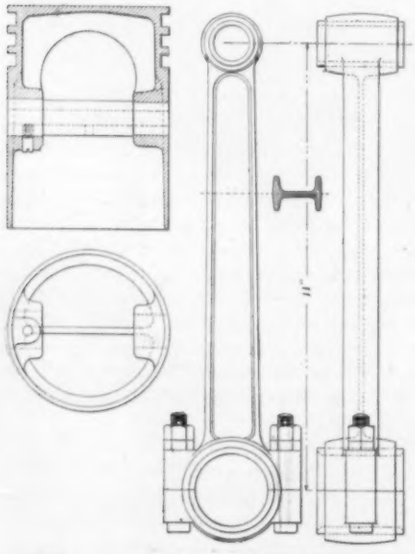


FIG. 1.—A LIGHT WEIGHT DESIGN.

liberal fillets. Such a piston must be made with a core to get uniform results, and it is not unusual to counterbore it up to the wrist-pin bosses, to get the wall as thin as possible.

The piston of a single-cylinder vertical motor must be light before all else, and therefore it is always short. But a big piston wears better, and the usual compromise in a balanced engine is to make the piston half an inch or an inch longer than the stroke, or just long enough so that it will not overrun the cylinder oil feed pipe. Its lower rim, which is often less than one-eighth inch thick, is frequently given an internal flange to stiffen it against accidental breakage. Obviously special appliances are needed for machining a piece so fragile in every direction but those in which the working stress comes, else when finished it would be anything but cylindrical. Usually the piston is first counterbored in a chuck, and a central plug is then slipped into the open end to support it when the outer cuts are taken. The piston is then finished between centers in the lathe

A fair, but not extreme, example of weight cutting in pistons is shown in Fig. 1 which is slightly modified from a design made by the writer last year for a four-cylinder 4x5 inch engine, now in service. The screw used to hold the wrist pin in place will be noticed. It is cut with the thread a little large, so that it screws very tightly into place. The defect of the set screws ordinarily used for this purpose is that their points may carry the whole downward pull of the rod at the end of the exhaust and beginning of the suction stroke. The wrist pin in the drawing is a neat fit at its ends, and does not rattle; and the screw never works loose.

The rings are first bored then roughed off, eccentric to the bore, then finished on their outer face and cut off from the blank from which they are made. The inner face is then finished, and they are cut, sprung together, and clamped, a dozen or so at a time, and given the finishing outside cut and a final grinding under a stream of water, to ensure a perfectly circular form when compressed. Finally the faces are ground until the rings gauge a uniform width.

The cut is usually diagonal, but sometimes Z-shaped, and in practice there seems to be little to choose between the two. Either will leak a little, and not less than three rings should be used. Their width will be mainly a matter of risk of breakage, as a wide ring has in itself no advantage, while, on the other hand, it reduces the bearing surface of the piston.

The Wrist-Pin.

Where weight *must* be saved, the wrist-pin may be made small and the bosses short. But if this is done, the eye of the connecting rod should be wide enough to support the bushing reasonably near its ends. If this is not done, the pressure is concentrated inside the eye, owing to the slight springing of the pin and bushing, with the natural result that the pin bends and splits both bushing and bosses. A much more mechanical design is to make the pin large enough to be drilled out thin, and make the rod end and bushing to suit. This gives a large wearing surface, and has the advantage of permitting oil from the cylinder walls to get into the pin, and thence through suitable holes to the bushing

Whether large or small, the wrist-pin should be made either of annealed tool steel or, better, of mild steel case-hardened. The bushing is of phosphor bronze, Some builders make this bushing split, and provide means for taking up wear in it; but this adds a good deal of weight where it is by no means desired, and seems to argue failure to lubricate the pin properly. The wear in a liberally-designed bushing should be very small, and it is a simple matter to knock out a worm bushing and put in a new one.

The Connecting Rod.

A great variety of forms have been given the connecting rod. Circular sections, rectangular sections, tubular rods with ends brazed in, and H-sections may be found. The last-named is gaining ground, but it is too often made for the sake of convenience in arranging the bolts, with the flanges parallel to the plane of motion instead of across it. A connecting rod is in the condition of a column which tends to buckle in a particular plane—the plane of its motion. Its two bearings tend to prevent it, if they are as long as such bearings ought to be in a high-speed engine, from buckling parallel to the shaft. Therefore the flanges of the H-section should be placed where, like the flanges of an I-beam under a bending load, they will resist this stress most effectively. There is only one best way to make a connecting rod, and that is to drop-forge it with a very thin web and wide flanges, arranged as described. It is surprising how light a rod can be made in this way, using a fairly high carbon steel, say 40 point.

If only a few rods are to be made, a very fair substitute for the drop forging is a steel casting. The illustration shows a rod designed last year for the engine above referred to. Its section was calculated from the H-section formula for columns, and the castings are of Jupiter steel. Although very light, they have proved amply strong, and might indeed have been lightened further at the ends.

If the motor were large, a little weight might also have been saved by drilling holes in the webs. The "marine end," it will be noticed, is not used. Though a very convenient form as regards taking up wear, its weight makes it undesirable for the present class of service. Owing to the limited length into which the crank-case could go, the crank pins are larger and shorter than would have been strictly desirable.

One reason, which is perhaps not generally understood, for making both the piston and the connecting rod as light as possible, is to prevent their inertia near the end of the compression stroke from exceeding them down against their bearings. If this happens—and if it does not happen with a full charge it may when running fast on the throttle—the effect of the explosion will be to reverse the slack in one or both bearings with a smart blow. Contrary to an impression regarding four-cycle motors which used to be more common than it is now, a correctly designed engine will run with very loose bearings before any audible knocking occurs; and this is simply because, on account of the inertia of the parts, the reversal of pressure in the rod bearings occurs, not at the beginning and end of the suction stroke, but near the middle of the exhaust and suction strokes, when the change in the velocity of the reciprocating parts is proceeding at its slowest rate.

The above does not refer to the familiar knocking heard when the motor is laboring and the ignition comes too early. Under these conditions there is no reversal of pressure in the rod bearings and the seat

of the noise must be looked for elsewhere, —perhaps in the main shaft bearings.

Shaft and Bearings.

The higher the speed, the more carefully the bearings must be looked after. Long bearings and high-grade metals are characteristic of the modern automobile motor. The small single-cylinder motors with crank case flywheels usually have case-hardened steel bushings as well. The latter are impracticable in the medium and larger sizes, and in these phosphor bronze is resorted to, with abundant lubrication. Even the crank shafts are best made of something better than ordinary machinery steel. With 30 or 40 point steel the diameters may be smaller, and the bronze wears less rapidly than with a softer steel. If separate cylinders are used, bearings can be placed between all the cylinders, and this is much the best way to do, even if the individual bearings are short. It is not necessary that the second and fourth bearings should have caps. With splash lubrication, they will catch more oil without them.

Whether three or five bearings are used, their length should be as nearly as possible proportioned to the work they will have to do. It is not uncommon to see motors with the intermediate bearings much shorter than those at the ends; but the only theories on which the writer can frame an excuse for this are that the end bearings get less oil than the inner, or that the shaft and crankcase are supposed to spring enough to accommodate themselves to the more rapid wear of the inner bearings. Certainly neither theory is likely to attract the engineer. The bearing next to the flywheel is naturally made of extra length to sustain its continuous dead load.

Lubrication.

The general subject of lubrication has received and justified a vast deal of care. Ring oilers, once a rarity, have in many cases replaced the sight feed oil cups. Pistons are oiled, generally, by diminutive pressure pumps worked from the engine; and very often other bearings of the engine are supplied in the same way. Splash lubrication, which is probably at once the simplest and the most trustworthy way of oiling the shaft and crank pin bearings, is prevented from supplying the pistons in too generous measure by splash plates, slotted for the connecting rods to pass through.

And yet it must be said that there is still something to be done before the lubrication system comes to be recognized generally as an integral portion of the engine, and as such entitled to as careful planning as the design of the piston or the arrangement of the valves. The bearings of a high-speed engine need, not the frugal drop-by-drop lubrication which was ample when 600 turns per minute was thought fast running, but streams of oil, flowing through the bearings, escaping at the ends, caught, settled, returned and used again. With such lubrication on crank pin, main and cam shaft bearings, and with ample surfaces and low specific pressures, the fastest motor ever built will run thousands of miles without overhauling. Some high-speed motors are oiled that way now. Before many years all of them will be.

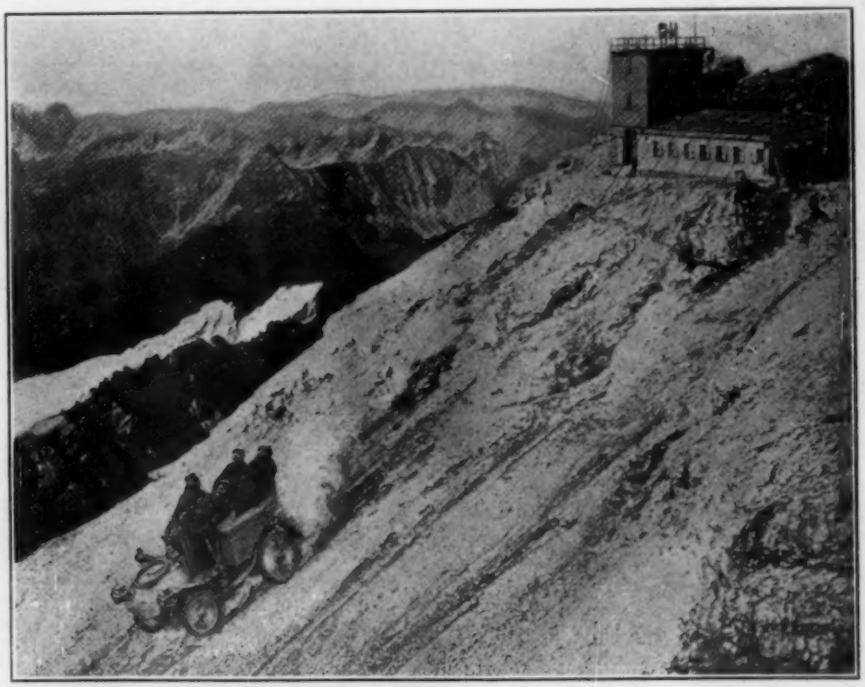
Compression.

Turning to the subject of compression, it may be remarked that the size of the clearance space is one of the most difficult things about the engine to formulate into a rule. The smallest clearance space that has come to the writer's notice, so far as concerns ordinary Otto cycle engines, was .21 of the piston displacement. This was in a small "Protos" single-cylinder motor, made in Germany. From this it may run to .3 or .33, according to the cylinder sizes and the speed proposed. The last of these ratios would give a compression amply high if the cylinder took in a full charge. As it never does this at anything like normal speed, the designer must rely on his experience and judgment to tell him what allowance to make for "drop" in pressure between the carbureter and the inlet valves. Probably, in spite of the small clearance, the compression of the "Protos" motor referred to was not over eighty or eighty-five pounds gauge at normal speed. The higher the speed, the higher the compression may be—indeed, must be,—since a high compression helps the charge to burn rapidly, and combustion cannot be too rapid at speeds of 1,000 r.p.m and upward. *Per contra*, a high compression is undesirable at moderate speeds, as it taxes valves and joints, and all the theoretical gain in efficiency is likely to be lost by leakage past the rings.

(To be Continued.)

RICH YOUNG SWAIN ON ROYAL ROAD TO KNOWLEDGE.

With the intention of ultimately entering the automobile trade for himself a young society man of New York whose wealth runs to the six figures and whose parents and relatives travel in the very best society, will for the nonce drop his identity and engage as a chauffeur for a prominent man. It is his intention to take the rebuffs which come to the chauffeur without question at all times. After a few months of such work he will take a place in a repairing station, where some months will be spent. From repairs to the demonstrating field, and then to the salesroom will be natural steps, and then the young man will be ready, he believes, to enter the trade with an understanding such as is acquired by few amateurs. For years he has thought of little else than having a good time, but the automobile interested him, and some time ago he bought one with which he has done considerable traveling. No man in the leisure class probably takes more delight in tinkering with a machine and as for professional chauffeurs he wants none of them, as his delight is in making his own machine go and in keeping it going all the time.



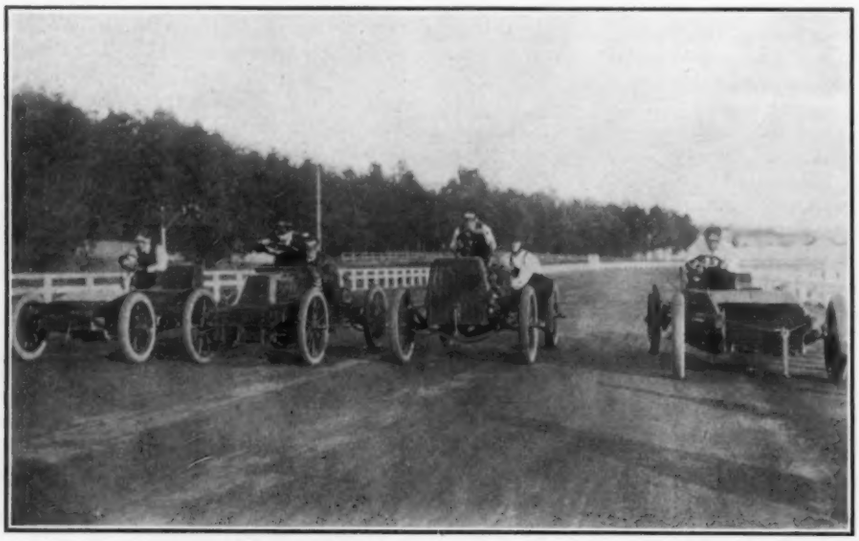
From *Das Schnauferl*, Munich.

Transcontinentalists Outdone *or* **A Triumph Over Photography.**

Members of the Alpine Automobile Association Start from the Club House for Their Usual Morning Spin.

FAST RACING AT THREE DAYS MEET IN SAN FRANCISCO.

SAN FRANCISCO, Nov. 11.—The race meet held here last week was extended from two days to three, owing to heavy rain Friday night and Saturday morning that made Ingleside track wet and soft and diminished the attendance on the second afternoon. In the hope of drawing a large crowd, the Automobile Club of California extended the program to Sunday, when the weather was particularly clear and bright and a card of seven events was run off.



START OF TEN-MILE RACE AT INGLESIDE, SAN FRANCISCO.

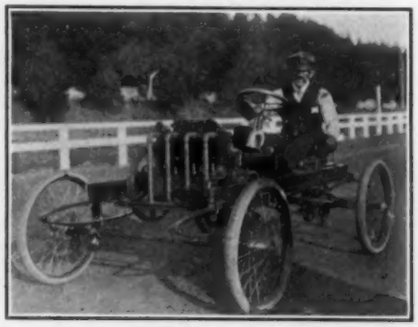
William Graham in "Bullet No. 3"—Pierre Desmet in 40-HP. Mors—W. E. Saunders in 4-cyl. Toledo—Barney Oldfield in "Bullet No. 2."

The racing on the three days was excellent and the sport was marred by but two minor accidents. On Friday, before the races started, a touring car owned by Dr. F. E. Keck was crossing the track to the enclosure where spectators' cars were lined up along the fence opposite the grandstand, when a young man named Thomas Hendry started to walk across and was struck by the automobile, which passed over his right leg, breaking it in two places. Dr. Keck, who was entered for several of the races, scratched his name and machine.

The second accident happened on Sunday afternoon. The Mors operated by Pierre Desmet had just crossed the line a winner in the ten-mile free-for-all handicap and friends crowded onto the track to congratulate the operator. A White steam car driven by H. D. Ryus was coming down the straight, and, despite all the efforts of its driver, ran into the crowd, knocking down a fourteen year old boy named Joseph Reilly and carrying him along for forty feet. Reilly was picked up and examined by three doctors, who found no bones broken. He soon regained consciousness and inquired what had struck him. Reilly says that when he next goes to an automobile race, he will sit up in a tree and watch it with a pair of field-glasses.

Of course, the races in which Barney Oldfield appeared excited far the most interest. In the five-mile open event for cars of 1,800 pounds or less on Friday, the champion driver in the Baby Bullet was beaten by Walter Grothe in a White. It was explained that Oldfield could not get his mixture right. In the ten-mile race Oldfield appeared in Bullet II. William Graham driving the Baby Bullet. The two Bullets were first and second, a 40-horse-power Mors, driven by Pierre Desmet and owned by G. P. Whittell, Jr., being third. The Baby Bullet was beaten half a mile, the White steamer and a four-cylinder Toledo more than a mile. The winner's time for the ten miles was 11:00 1-5, and his fastest mile was covered in 1:00 1-5.

Although the track was too soft for record breaking on Saturday, Oldfield, in Bullet II, covered ten miles in 10:19 1-5, his fastest mile being accomplished in 58 4-5 seconds. In the five-mile race on Friday Barney Oldfield, driving Baby Bullet had been beaten by a White steam car, but he said that this would not happen again. E. P. Brinegar, of the Pioneer Automobile Company, coast agent for the Winton, bet $200 that Oldfield would beat the White car a mile. This was taken by F. A. Marriott, Jr. At the end of the first mile Oldfield was 100 yards ahead of the White, and he kept gaining till, with 100 yards yet to be traversed Oldfield caught up and passed the White, crossing the tape one mile and a few yards ahead of Walter Grothe, in the White, after a most exciting struggle.



W. F. WINCHESTER IN FRANKLIN CAR.

In the ten-mile open race the competitors were Barney Oldfield in Bullet II, William Graham in the Baby Bullet, Pierre Desmet, in the Mors, and W. E. Saunders, in a four-cylinder Toledo, with an outrider. Oldfield crossed the tape last at the start, but at the end of the first mile was in the lead. In the homestretch at the close of the fourth mile Oldfield caught and passed the Mors which stopped. At the fifth mile he passed the Toledo. He covered the eighth mile in 58 4-5 seconds. In the ninth he lapped the Baby Bullet, and on the tenth passed the Toledo for the second time. He went round the track twice more before turning into the enclosure, where he was greeted warmly by the crowd. The track was in very poor condition for record breaking, and the time under such conditions was wonderful, the ten miles being covered in 10:19 1-5.

The summaries are as follows:

FIRST DAY'S SUMMARIES.

Two miles, for gasoline cars only, of 6 1-2 hp. and less:—W. S. Hunt (Pioneer Auto. Co's Olds), 1st; C. S. Luckhardt (National Auto. Co.'s Rambler), 2nd; Dr. W. H. Kellogg (Orient Buckboard), 3rd. Time, 3:27 1-5.

Five mile, open, for cars weighing 1,200 pounds and less:—W. F. Winchester (E. C. Ford and F. A. Jacob's Franklin), 1st; F. R. Luckhardt (Pacific Motor Car Co.'s St. Louis), 2nd; Dr. W. H. Kellogg (Buckboard), 3rd. Time, 8 50 1-5.

Five miles, Motorcycle Handicap:—Thomas A. White (2 1-2 hp. Rambler). 30 seconds' handicap, 1st; E. M. Coffin (4-hp. Duck), scratch. 2nd. Time, 10:16 4-5. There were six other starters, but the race was between White and Coffin from the start. The former rode with his body at right-angles to his legs, while Coffin lay on his stomach on the seat of the machine with his legs out behind.

Five miles for gasoline cars only, 24-hp. and less.—W. E. Saunders (National Auto. Co.'s Toledo), 1st; W. F. Winchester (Ford and Jacobs' Franklin), 2nd. Time, 6:46 4-5. Won by less than a length.

Five miles, open, for cars weighing 1,800 pounds and less:—Walter Grothe (White steam car), 1st; Barney Oldfield (Winton Baby Bullet), 2nd: R. D. Ryus (White), 3rd; Pierre Desmet (G. P. Whittell, Jr's Mors) 4th. Time. 6:04 2-5. Oldfield's time, 6:17 4-5.

Five miles, open for all cars owned in California:—W. E. Saunders (Toledo), 1st; F. A. Garbutt (White), 2nd; Pierre Desmet (Mors). 3rd; H. D. Ryus (White), 4th. Time, 6:25 1-5.

Ten miles, open, free-for-all, for $400 first prize:—Barney Oldfield (Winton Bullett II.), 1st; William Graham (Winton Baby Bullet), 2nd; Pierre Desmet (Mors), 3rd. Time, 11:00 1-5. Fastest mile, Oldfield, 1:00 1-5. W. E. Saunders (Toledo) and Walter Grothe (White), unplaced.

Five miles, handicap, open to Pacific Coast cars that took part in foregoing events:—C. C. Eib (Pioneer Auto. Co.'s Olds), 2:30 handicap, 1st; Pierre Desmet (G. P. Whittell, Jr.'s Mors), 40 sec., 2nd; C. S. Luckhardt (National Auto. Co.'s Rambler), 2:05, 3rd. Time, 8:46 2-5.

SECOND DAY'S SUMMARIES.

Ten miles, match:—Oldfield (Baby Bullet), 1st; Walter Grothe (White), 2nd. Won by more than a mile.

Ten miles, open:—Barney Oldfield (Bullet II.), 1st; William Graham (Baby Bullet), 2nd; W. E. Saunders (Toledo), 3rd; Pierre Desmet (Mors), 4th. Time, 10·19 1-5. Fastest time, :58 4-5.

Three miles, open, for 6 1-2 hp. and less:—Walter Grothe (White), 1st; W. S. Hunt (Olds), 2nd; Dr. W. H. Kellogg (Buckboard), 3rd; C. S. Luckhardt (Rambler), 4th. Time, 5:25.

Five miles, for gasoline cars weighing 1,200 pounds or less.—W. F. Winchester (Ford and Jacobs' Franklin), 1st; R. Fowler, (Geo. E. Middleton's Franklin), 2nd.; C. S. Luckhardt (National Auto. Co.'s Rambler), 3rd. Time, 7:59 1-5.

THE TOLEDO CAR ON INGLESIDE TRACK.

Five miles, Motorcycle Handicap:—Thos. A. White (Rambler), 10 sec., 1st; A. H. Sampson (Rambler), 30 sec., 2nd; E. M. Coffin (Duck), scratch, 3rd. Time, 11:51 3-5.

Five miles, open, for cars weighing 1 800 pounds and less:—Barney Oldfield (Baby Bullet), 1st; Pierre Desmet (Mors), 2nd; Walter Grothe (White), 3rd. Time, 5:51 4-5.

Five miles, open, for cars of 24-hp. or less:—W. E. Saunders (Toledo), 1st; F. A. Garbutt (White), 2nd; W. F. Winchester (Franklin), 3rd. Time, 6:24 1-5.

Five miles, handicap, open to Facific Coast cars that took part in preceding events:—W. H. Kellogg (Buckboard), 3:45 handicap, 1st; W. E. Saunders (Toledo), scratch, 2nd; R. Fowler (G. E. Middleton's Franklin), 2·45, 3rd. Time, 9:24.

Protests Decided by Racing Board.

The racing board of the American Automobile Association has rendered decisions in connection with the race meet of the Long Island Automobile Club at the Brighton Beach track on October 31 as follows:

"The protest of F. A. LaRoche against the Georges Richard-Brasier car entered in event No. 1 by E. B. Gallaher, on the ground that it failed to conform to Rule 13 in not being provided with 'body and hood sufficient to cover the mechanism' was allowed by the Referee and the car disqualified. Mr. Gallaher appealed to the Racing Board from the decision of the Referee. The Racing Board sustains the decision of the Referee, S. A. Miles, and the attention of the appellant is called to rules 13, 43 and 45.

"The protest of E. B. Gallaher against the Darracq car No. 35, driven by F. A. LaRoche in various events at the Brighton Beach races, is not sustained, and the following memorandum filed: 'This car, equipped as provided under rule No. 13, has been in exactly the same condition before and since the 31st of October. The point raised by Mr. Gallaher has been informally raised prior to this, and the informal protest withdrawn upon the demonstration of the fact that the car is eligible for competition under Class B. The car is provided with 'double-acting brakes, compensating and reversing devices, body and hood sufficient to cover mechanism and provide accommodation for one person alongside of the operator,' as has been demonstrated many times.

"Regarding the application of the judges for permission to reverse their placing of the cars in event No. 9, the Brighton Handicap, owing to the race having been finished after dark, the correct order of finish being as follows: C. A. Carlson (Winton), first; M. G. Berin (Renault), second; F. A. LaRoche (Darracq), third, and I. D. Plank (Cadillac), fourth, the chariman of the Racing Board approves of the application, which is approved by the referee of the occasion."

GERMANY WANTS NEW RULES FOR INTERNATIONAL CUP RACE.

In France, Germany and Belgium there is already intense interest in the formation of next year's teams for the great International Road Race in Germany for the Gordon-Bennett trophy.

From Germany comes the report that Emperor William proposes to give official recognition to automobile racing by donating a trophy to be competed for on this occasion. The Kaiser has expressed a desire to offer a prize for the best alcohol car, and have the German Automobile Club institute a competition for it. The secretary of the club has been asked to submit to the Emperor a report of the preparations made for next year's race for the International Cup.

The proposed course starts and ends at Saalburg, near Hamburg, and Prince Henry, who recently toured over the entire course in his automobile, says the course is "flat as a bowling alley." The French club is reported to be agreeable to the course proposed, and Count Adalbert Sierstorpf, of the German club, has gone to Paris to confer with Réné de Knyff regarding the provision that chauffeurs driving in the race need not necessarily belong to an automobile club, it being sufficient that they be nominated by it, and also in regard to an alteration of the deed of gift by Mr. Bennett allowing for a slight diminution of the distance. When these arrangements have been made, it is thought, the German Automobile Club will give the official decision on the choice of the course.

A special commission for the contest has been appointed by the club, with the Duke of Ratisbor and Prince Hohenlohe as honorary presidents, and Count Adalbert Sierstorpf as active president. The members are the Duke Adolf Friedrich of Mecklenburg, General Becker, Herr Levin, Herr Stoelping, Burgomaster von Marx, Privy Councillor Goldberger, Baron James von Bleichroeder, Herr von Kuhlmann and the Comte de Talleyrand-Périgord.

Whatever amount the club thinks necessary for expenses, it is said, will be forthcoming, and it is assured that the Germans will give the visitors a good race in every sense of the term.

A Boston syndicate is said to have completed plans for an automobile race track on one of three sites within three miles of the center of Boston's business district.

THE SILVER BAUBLES STRIVEN FOR AT SAN FRANCISCO RACE MEET.

The track is to be a full mile board affair—according to the plans—forty feet wide, banked twelve feet on the stretches and forty feet on the turns. About 500,000 feet of 2-inch spruce plank will be used in its construction, the report says, and it is expected the track will be in readiness for an automobile race meet on May 30.

Youngstown Ordinance a Dead Letter.

YOUNGSTOWN, Nov. 14.—The ordinance recently passed by the City Council requiring automobiles to be registered with the City Clerk and to carry license tags, seems to be doomed to become a dead letter. City Clerk Hubler states that only seven automobilists have registered their machines, while the remainder of forty odd machines are being operated without permits. For each and every offense of the ordinance there is a penalty of not more than $100, but no effort is being made by the police department to enforce the regulation.

Indiana Court Upholds Motorist.

The county judge of Sullivan County, Indiana, was recently called upon to decide what rights an automobilist has on the public highways of that county, thereby setting a legal precedent for the rest of the State. Homer Trimble, a farmer, brought suit for damages against Dr. George Pirtle, at the passing of whose automobile Trimble's horse became frightened and smashed the buggy to which it was hitched. Trimble's attorney contended that the horse, having antedated the automobile by several centuries, has better rights on the county roads than his mechanical rival. The court couldn't see it that way, however, and ruled that the automobile had equal rights on the road with the horse, and that it was Trimble's own concern if his steed did not behave as it should. The suit was dismissed at the expense of the plaintiff.

SMALL INTEREST SHOWN IN RECENT FRENCH SPEED TRIALS.

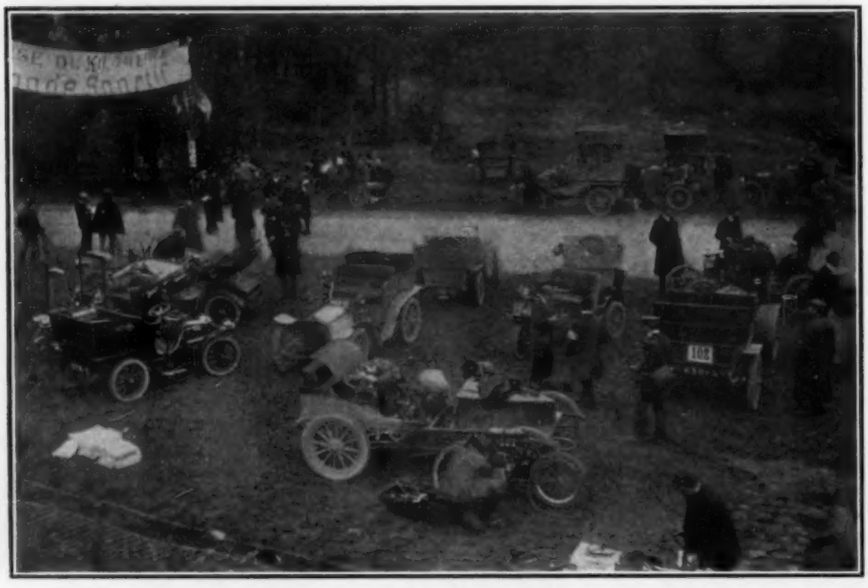
Track races have never interested the French people much, and hill-climbing contests have fared little better after their novelty had worn off. The volatility of the Gaul has a practical turn. He loves a new sensation, but he does not love it long unless it is useful or there is a note of progression toward a spectacular climax in it. His technical learning he prefers to take undiluted, in the form of hard work or tests so safeguarded with scientific apparatus that the public does not care to follow them. The novelties of motor boat racing, unrestricted as to speed, and of motor ballooning, so attractive to the imagination, have combined with the memories of exciting long distance road races to spoil for him the tame exhibitions of hill-climbing capacity to which his government, for the time being, has reduced him.

MOMO AND HIS PEUGEOT

The best French publications give little more than summaries of these events, and the class of spectators whom they attract show much lower types of physiognomy than in former years. They have degenerated into mere advertising exploits, and their organization is in the hands of the sporting papers.

At the kilometer trials at Dourdan on October 22 rain interfered seriously, and the events for large cars were postponed till October 29, and again to November 5. Among the motorcycles a single-cylinder Peugeot, operated by Momo, made the kilometer in 47 1-5 seconds, while a four-cylinder machine of much greater power required 1 m. 18 s., the slippery surface having something to do with this result.

On November 8 the annual kilometer trials at Gaillon took place on the Sainte-Barbe hill, and cablegrams announce that here at least there was a sensation, though not of the kind desired. A dense fog shrouded the course, and two cars came into collision while going at full speed through the mist, say the reports, resulting in the death of one and serious injury to three others. Later in the day a Gardner-Serpollet car, carrying five shop foremen, swerved into a tree, killing two and maiming the other three occupants, besides injuring two bystanders.



VEHICLES PARKED AT START OF DOURDAN TRIALS

Show Applicants to be Disappointed.

Applications for exhibition space in Madison Square Garden for the January show are still coming in, notwithstanding there are already nearly fifty applicants who will be refused space owing to the limitations of the capacity of the building. Secretary Young, of the Garden company, said on Wednesday that the allotments would not be made public for several more days, and that no provision would be made for accommodating the displays of those makers who were not allotted spaces in the Garden building in an outside building constituting an annex or overflow exhibition. R. H. Macy & Co., however, are offering display space on the top floor of their new building at Broadway and 34th Street to the disappointed applicants.

The restaurant in the Madison Square Garden is to be occupied exclusively by foreign cars, and will constitute a small foreign show on Amerian soil.

Technicality Saves Chicago's Ordinance.

CHICAGO, Nov. 13.—Because Albert C. Banker did not allege in his bill the existence of other automobile owners "similarly situated," the Appellate Court yesterday reversed the judgment of the Circuit Court in granting him a temporary injunction restraining the city from prosecuting him or others similarly situated under the automobile license ordinance. Banker contended in his bill that the ordinance is unconstitutional and void in that it provides for double taxation of personal property.

The reviewing court found that the bill as filed did not affirmatively state that there is a single automobile owned or operated in Chicago except the one owned and operated by the lone ordinance fighter,

and although Banker attempted to make this allegation in an amendment, the Appellate Court held that it was of no effect, since it was not verified under oath.

Iowa Road Race Fell Through.

A number of automobilists of Thurman, Iowa, thought to emulate the French by promoting a road race, so a big affair was arranged for. The course was to be 100 miles long and to form a circuit from Thurman through Tabor, Randolph, Imogene, Shenandoah, Farragut, Riverton, Hamburg, Sidney, and back to Thurman. The entry fee was to be $10, and the winner was to get the whole of the purse, which was to be all of the entry money. However, like many another of the "best laid schemes," when all arrangements were completed the plan fell through. Several of the entrants failed to show up for the start and the race was declared off.

Florida's First Flower Parade.

JACKSONVILLE, Nov. 5.—Florida was treated to her first automobile flower parade to-day, when the automobilists of Jacksonville, to add to the program of the carnival which is in progress, appeared in beautifully decorated cars, a cavalcade the like of which had never been seen in the State before. Thirty-two prettily decorated automobiles were in line, many of them bearing jolly parties of Jacksonville's fairest young women in charming gowns and carrying beautiful flowers. The parade was witnessed by many thousands of people, the sidewalks along the course being packed with a surging mass of humanity, while every window and door was jammed. Florida's first automobile flower parade was a big success.

Touring Company Follows the Birds.

The Automobile Touring Company, which has been operating an automobile livery in Minneapolis and St. Paul during the past summer, has flown to the land of sunshine and flowers, there to sojourn until the robins come again to Minnesota and the winter visitors leave Southern California for the North and East. Los Angeles will be the home of the Minnesota concern during the winter, and with the aid of several new machines it is expected that a thriving business will be done carrying tourists over the many fine boulevards out of the beautiful city of the angels. There are many famous coaching trips out of Los Angeles, and automobile touring parties are sure to become quite popular with the winter visitors.

The Automobile Touring Company loaded up all its cars, drivers, machinists, and all, on Tuesday of last week, tagged the whole consignment for Los Angeles, and said *au revoir* but not goodbye to the Twin Cities of the Northwest.

How the Widow's Consent was Won

BY MARION EMMA TRACY.

A large, roomy touring car of latest pattern drew up in front of the unpretentious postoffice at Center Square; and an easy vibration succeeded the heavier teuf-teuf-teuf of the hill-climb on the way into town. President John J. S—— of the Union City and Little Creek Electric Railway Company, leaned against the cushions of his luxurious tonneau and waited expectantly, while passersby slackened their pace and gazed curiously at the gay-colored automobile. The chauffeur whistled once or twice to attract the attention of some one inside, but no one appeared at the door.

"Hey, there!" shouted the President; then he lit a cigar. "Hey, there!" this time a little more imperatively. The deputy postmaster at length sauntered leisurely out.

"Good afternoon"—with a nod—"On the Rural Free Delivery to-day?" he asked mischievously.

"Yes, but I handle only first-class 'males;' no time for second-class matter," and he waved the Deputy aside as the latter made a feint of entering the car. Then the President passed him a smoke.

"Is the 'Governor' working to-day?" he asked.

"He is working"—puff-puff—"a palm-leaf fan—and the clerks." Puff-puff. "That's all he's doing."

"Go in, then, and tell him who's waiting."

Thus summoned, Postmaster Frederick came to the door and crossed to the curbing. "How do you do, Mr. President?" he said, vigorously wielding the aforesaid palm-leaf,—"fine day!"

John J. S—— laughed. "Blush roses not in it; peonies more like," pointing to the other's florid countenance; "Get in here with me and I'll take you where the summer breezes blow."

"It's a bargain; just wait until I get my panama."

Postmaster Frederick was a man of strong characteristics; from the shape of his cranium and the reputed size of his pocketbook he was considered "long-headed." Back in the early years of his life his physical proportions were those of a light-house. Here the brilliancy of his intellect safely guided all small craft floundering on the high seas of "fractions" and "verbs." District school teaching was the first rung in his ladder of fame. Its scope afforded a footing for his "No. 10's," but its future did not wholly satisfy his ambitions. It may have been the effect of mind upon matter, but as time passed he outgrew simultaneously the title of pedagogue and his old sizes of trousers. He was an expansionist politically and demonstrated it physically.

To his other important interests he coupled the profession of politics, thus adding "glory to glory." And now in the zenith of his activity, having passed through several processes of political evolution, he emerged still retaining his "head" and a good-paying appointment under Uncle Sam. But his longings for conquest were not appeased. He would often put the office in the hands of the deputy; he could handle the deputy much better than he could so many details. At present he was serving in the capacity of right-of-way agent for the Union City & Little Creek Electric people who were seeking to connect Center Square with the Varney and Onewana main line. As a financier he was ambidextrous—he could draw a salary with either hand.

Through his almost irresistible persuasiveness fully nine-tenths of the property holders along the proposed route were convinced that if the electrics mutilated their meadows, they would also multiply their chances for prosperity, providing an efficient and sure outlet for the country's produce. The unconvinced proved an incorrigible element the syndicate had to reckon with; said element being represented in one particular case by a female landowner. The Widow Wade resolved herself into that coveted but unacquired tenth. The road agent's best logic withered before her stubborn incredulity; she seemed to have no vulnerable point. He was further handicapped by having unwittingly admitted that his wife was living, and on the whole was facing partial if not complete defeat. The widow was the subject of conversation as the two speeded merrily along the quiet country road.

"She is just as obdurate as ever," the agent was saying as the car slowed down at an especially cool and shady stretch of roadway.

"She'll make us trouble unless the undertaker befriends us," John J. S—— smiled grimly. "Gibraltar is but a cobblestone in comparison."

"Have you kept all of the commandments?" he asked abruptly.

The question seemed irrelevant and uncomfortably personal. The Postmaster hesitated and answered reluctantly: "Yes—er—sometimes, some of the easy ones." The President looked up and down the road.

"Take 'heart of hope' and a little of this for the stomach's sake'—but not all of it," he said, drawing out a pocket flask. The prolonged tilt of the bottle augured un-

promisingly for his share in the contents. "You did leave a little by——!" but his words were lost in a gurgle and gulp. "Now don't get pessimistic over the widow again. We'll pay her a visit this afternoon, and I'll wager another of these" —tapping the bottle—"we'll have her consent before we return."

The mercury was anchored well up among the nineties. Amanda Wade and her mother were out on the north porch essaying to keep cool. Withdrawing her hand from a sock she was darning, the girl looked dreamily away toward the woods.

"Ma, don't you think it would be sorter nice to take the trolley car to Varney and git ice cream?"

"No, Mandy Wade, I don't take no stock in them cars! With a lightnin' rod on the house, I kin trust Providence when the Lord's handlin' the lightnin', but I ain't goin' to invite the Devil into my dooryard by lettin' them 'lectrics whiz past here with my consentin'. 'Tain't no ways likely they keep them narrer, slippery tracks more'n half the time," continued Mrs. Wade, "and what do you 'spose would happen if they shied off and banged agin' our house?" The question was never answered for at this minute an excited masculine voice was heard calling, "Ma! Ma! Where be you? Come here quick! The Devil is comin' and somebody with him!"

The north porch was vacated and three scared faces looked through the south window.

"I seen 'em way beyend the bend; I thought it was a Miss'oury cyclone, but it hain't!"

"Well, now, it do look like the 'Old Feller,' Aaron, but 'tain't likely it is; nigh as I kin cal'late it may be one of them—them 'ere—ker'sene buggies I've hearn tell on."

Mrs. Wade readjusted her glasses while Aaron stepped into the doorway. Far down the road was moving an object enveloped in dust. Faintly silhouetted against the sky were two human heads, while just in front gleamed two round eyes. Nearer and nearer it came.

"Landy me! They hain't coming here, be they? They'll bark them trees!" she shouted frantically as the automobile swerved and curved across the road and apparently started for that very south window.

"I hope they don't tear off no clabboards! Oh, dear! Oh, dear!"

Instead of doing anything of this kind, it glided peacefully between the great elms of the gate, skillfully avoided a battered tomato can, the remnants of a rat-trap, a dilapidated ash-barrel and other things that were scattered along its path.

"Aaron Wade, you git right out that door 'fore you git killed!" commanded the widow. Aaron thrust his body behind the door but craned his neck around its edge to see what would happen. Mrs. Wade retreated to the middle of the kitchen floor before the vehicle stopped at the side entrance; then she advanced cautiously until she recognized the agent of the trolley road.

"Good afternoon, Mrs. Wade. Could we trouble you for some of your excellent spring water?" he asked.

"Oh, sartin; Aaron, you go fetch a fresh bucketful, clean up from the bottom," she commanded.

"Mrs. Wade, this is my friend, Mr. S——." The President held out his hand. Dropping a courtesy as she stood on the large doorstone, she inclined her body at a reckless angle, and gingerly shook it. Here Aaron returned and handed up a dipper of water.

"You first, my dear Alphonse," murmured the agent, as he handed it on to the President, who drained it to the bottom.

"Best I've had in years; wouldn't take a small fortune for that well if it were mine," he declared.

The widow looked pleased. "Isaac allowed there wan't nothin' to beat it in these here parts; don't drink buttermilk, do you?" she asked temptingly.

"Rather have it than champagne," he asserted.

"Well, now, dew tell; jest wait till I step into the buttery."

"I wish we could buy such milk in town," sighed the President as he watched the flow of the creamy fluid.

"Hain't farmin' it then, I jedge," she commented, as she handed each a bowl of the delicious milk. "Hain't you skeered of them things?" she asked, eyeing the automobile with lingering distrust. "Don't ride in it for common, do you?" She was unable to restrain her curiosity further. The President emitted something between a cough and a laugh as he swallowed the last drop of the buttermilk. "Better have some more," she urged, but the offer was declined with thanks.

"Yes," replied John J. S——, taking up her query, "I ride in this for common; they are the finest thing out. Why should I be afraid of it?"

"Lor, now, Mr. President, but the tarnal critter looks so curious like; it's so sorter snub-nosed and bob-tailed." Then she bent low and gazed underneath. Seeing her interest the President stepped out, and disclosing the mechanism of the automobile, explained its workings.

"And is *them* the contraptions what make it go? Guess they'd puzzle a hoss doctor! How do you start the thing?"

"Won't you show her, Mr. Frederick?"

At the touch of the lever the big touring car moved away silently, spiritlike, leaving Mrs. Wade a few feet behind in open-mouthed wonder.

"It's well broke, hain't it? Seems a little spookish, though."

"Run her up and turn about," said the President, with an appropriate wave of his hand. Mrs. Wade instinctively made a dash for the door. The agent understood his work and the automobile glided away toward the barn. The space was narrow and required several difficult maneuvers before it turned majestically and slowly came back, stopping without evident effort.

"Well, now, I dew say, I never seen no gee-hawin' beat that," she asserted warmly, and her face bespoke her admiration.

"Wouldn't you like to take a ride in it?" the President asked.

"Me! did you say? Me! go and take a ride in that 'ere thing with you?" she fairly gasped, openly delighted with the prospect, but unwilling to admit it at the very beginning. "Lands alive, now! I don't know but it would make talk, but I'd reely like to if you're positive sartin the critter won't run away with us. Mandy, git my sonbonnet."

The agent relinquished his position; John J. S—— stepped in, and as Mrs. Wade tied her bonnet strings, Frederick assisted her into the car. She sat down on the edge of the seat, braced her feet and seized the President's arm in a death-like grip.

"Hang on, Ma, don't fall out," cautioned Aaron, still full of misgivings. He couldn't understand what did possess his mother to take such risks.

Almost imperceptibly they started, then crept down the roadway through the big gate, and with a long, easy swerve took the road without slipping out into the ditch. She looked back and waved her hand to the waiting trio, but her breath was coming in gasps. Before them lay an undulating bit of country road, an ideal place for speeding, but the President preserved an easy-going pace.

"Do you like it?" he queried, after a tactful pause.

"It hain't bad so fur," she admitted as she turned toward him a face full of childish admiration. She settled back upon the cushions, but the breeze caught the sleeves of her blue-print gown and they filled like sails, while the skirt of her sunbonnet fluttered like a flag at half-mast. They passed on in silence for a time, but the widow was enjoying it with all the zest of an enthusiast.

"Could it be nicer?" inquired the President.

"Nicer! Why, lands alive, it beats 'flowery beds of ease' or 'downy pillers,' or anything soft I ever sot on," she answered smilingly.

Far ahead toiled a loaded team. The President signalled and the driver turned to one side. The widow began to look anxious. "You hain't goin' to run into him, be you?" she asked. John J. S—— laughed: "Oh, no, we'll turn out in good season." At the point of meeting the land fell away from the roadbed leaving an embankment of several feet. As the widow perceived this she gave one shriek and throwing her arms about the President, pillowed her head on his shoulder.

"I hope we won't be killed," she murmured. "Oh, Aaron, I hadn't ort to have done it; I know I hadn't!"

"Haw—haw—haw!" came from the man on the load—the only one of the three participants to enjoy the situation The lever was jerked and the speed law broken for a few rods.

"Hain't nothin' going to happen?" piped Mrs. Wade, as she realized that she was still alive.

"Certainly not, my good woman, there wasn't the least bit of danger," he replied while his calmness re-established her confidence. "Shall we go any farther?" he asked after a time.

"Well, now, I suppose we ort to go back, but reely, I wouldn't mind goin' straight through to Heaven in this 'ere! Why, if there ain't Jacob Peter's house; we're nigh five miles from home!" Her tones were incredulous, but there was no getting away from the fact.

"Just twenty minutes since we started," announced the President, after consulting his watch.

"Twenty minutes!" she repeated. "We'd a ben an hour and a half comin' with old Betsy!"

"We'll stir up a bit of dust going back," suggested the President, and his eyes twinkled in anticipation; but at the highest speed the widow entered no protest. She was thoroughly enamored of her new-born experience.

"I know nothing more enjoyable than touring through the country in one of these," he remarked. "There is nothing to compare with it but an electric car. They both provide comfort and rapid transit; the main difference being that the electric cars are designed for public convenience, while these are mostly owned individually."

She turned on him almost fiercely. "Electric street cars like this here, did you say? Hain't you got twisted a bit? If that is so, you can git right back to that agent jest as quick as you kin. I'm goin' to tell him I've changed my mind." With some difficulty the President restrained himself from giving his old college yell.

"Was it nice, Ma?" asked Aaron, as he helped her alight.

"It's a regular Elijah's chariot," she asserted; then disappeared for a few moments.

"Here's some early pie apples for Mrs. S——, and some more buttermilk for you," she said, returning with a half-filled flour-sack in one hand and a jug in the other. "When you come this way again, don't forget to stop." Then she suddenly threw up her hands.

"Lans alive, Mr. President, I hain't signed that docyment yit!"

The President looked at the agent and Frederick gasped but understood. With trembling fingers he drew forth the paper in question, indicating the blank to fill out. She knelt by the door-sill and wrote:

"*Mrs. Isaac Wade, 'widdo.'*"

She and Mandy followed them down to the elms, with Aaron not far behind. Good-byes were said, while the breezes carried her final sentiments on to the departing guests, "I've half a mind to sell the old bay mare and git one."

GOING THOUSANDS OF MILES JUST A-VISITING FRIENDS.

The first stage of the longest automobile tour ever attempted in the United States was successfully completed last Tuesday afternoon when Mrs. S. E. York, of Minneapolis, and party arrived in New York from St. Paul, *en route* to Portland, Maine, where Mrs. York once resided. After a few days in the Pine Tree State the journey will be resumed to St. Louis, where the tourists will visit the World's Fair, after which the car will be headed for the Pacific Coast.

Mrs. York, accompanied by Mr. and Mrs. H. S. Howard and Jack Elliott, chauffeur, left St. Paul at 11 o'clock on the morning of Saturday, October 24, in a standard Model F Packard touring car, and traveled

MRS. YORK AND HER PARTY STARTING FROM ST. PAUL, MINN.

across Minnesota, Iowa, Wisconsin, Illinois, Indiana, Ohio and New York, a distance of nearly 2,000 miles in little more than three weeks' time, without an accident of any kind; a broken chain at White Pigeon, Michigan, and three punctures causing the only necessary delays on the journey until the party reached Fishkill, on the Hudson River, where a delay of a day and a half was caused by heavy rain. In speaking of this remarkable trip, Mrs. York said:

"I used to live in Portland, Maine, and while there became deeply interested in automobiles, and finally bought a steam car and drove it myself and became greatly fascinated with the sport. After moving West my interest in automobiling continued and I decided to invest in a larger car. It seemed a big problem to decide which one to buy, but the success of the first stage of this present trip convinces me that I have the best machine in the world. I suppose a good many people will think that we are touring for some business reason, but such is not the case. I had determined to visit my old home this fall, and it just happened to occur to me that it would be great fun to go in my new car, so I invited a couple of my friends, Mr. and Mrs. Howard, and here we are."

The party left New York for Boston at noon on Wednesday, the day after its arrival in the Metropolis.

Side-Door Tonneau Cars at the Shows.

Several makes of foreign cars with side entrances to the tonneau seats will be exhibited at the New York and Chicago shows, among them the Georges Richard-Brasier, the Panhard and Mercedes. Rothschild bodies with side doors in the tonneau will also be exhibited. The side entrance has many advantages over the rear door which promise to make it popular. Women welcome it because it is possible to step directly from the curb into the car without soiling the shoes and perhaps their skirts by stepping into the street, which is frequently wet or muddy. In addition, the rear seat can be made solid, affording more commodious seating space, and the space under the rear seats can be utilized as a storage compartment, with a door opening at the rear of the body.

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SATURDAY, NOVEMBER 21, 1903.

ONE PHASE OF SELDEN SITUATION.

The industrial situation ostensibly created by the Selden patent furnishes the subject for almost daily communications to this publication, and well it may, since it has been said, and not gainsaid, that the judicial upholding of this patent would entitle those who control it to have every unlicensed gasoline motor vehicle in the land battered to pieces by officers of the law and utterly destroyed, whether found in the possession of manufacturers or innocent purchasers. That a patent issued in 1895 should have retroactive effect to exclude from right to existence such cars as those made by Duryea and by Haynes-Apperson in 1893 or earlier, as well as those French and German cars which were evolved from Daimler's and Benz's patents of 1886, seems to most of our correspondents a crying injustice. It was in 1895 that the first Paris-Bordeaux race was run, when a Levassor car finished the long journey at an average speed of twenty-two kilometers per hour, and it was on Thanksgiving Day of the same year that several gasoline motor vehicles competed in Chicago in the *Times-Herald* contest, one of them completing the circuit of the boulevard system of that city through deep snow.

These and many other facts render it indisputable that the actual invention of gasoline motor vehicles was independent of the idea which Mr. Selden succeeded in patenting. A moral right to levy tribute from those who perfected their inventions in substance, rather than on the parchment symbolic of State protection, would probably not be claimed for him by any one, and it is the evident absence of a first-hand moral right that makes it appear arbitrary to insist upon the last farthing of the legal right which is in dispute.

It is perhaps not commonly understood that a legal right, if in dispute, must either be asserted to its full technical extent or dropped altogether. Concessions cannot be made until it is acknowledged by its adversaries Yet, this is a business principle from which there are but few exceptions, if any. The holders of the Selden patent must either assert their right to full protection or place the patent in the waste paper basket. They have adopted the plan which most American business men would have followed in their place, and the situation created is one relating purely to technical legality, and must so remain until a court decision shall have been rendered.

Thereafter, if the patent be upheld, it will be time for concessions. For then it will be a situation—while now it is essentially a theory—with which the patent owners will have to deal.

Meanwhile, however, the delays in having the theory adjudicated constitute the true hardship of which complaint is made, and for this neither the licensed nor the unlicensed manufacturers are to be blamed, but solely our judicial system which affords no relief in those industrial emergencies in which a quick, final decision is the desideratum, even more than the justice of the decision when it is eventually rendered. It was doubtless against the hardships of delay that many who are now members of the Licensed Association sought refuge when they joined it, and their action should therefore hardly be interpreted as an admission of the patent's validity, especially as other factors of great importance, for good or evil, in the manufacture and sale of automobiles, were mixed with the license question in the proposition to which they assented. With fresh recollection of the demoralization which overtook the bicycle industry when it was invaded by many persons and companies who could not resist the temptation to gain temporary trade by suicidal methods of competition, it was natural that automobile manufacturers should be willing to combine against a repetition of that ruinous condition when the semi-compulsion of a threatening patent right offered an opportunity for doing so without the formation of an odious and impracticable "trust."

REASON FOR THE PRICE.

THE AUTOMOBILE has taken occasion several times of late to caution those of its correspondents who seek information regarding valve and clearance space dimensions against expecting too much in the way of power and speed from their early attempt at gas engine construction. This has been done from no wish to discourage the amateur builders, whose efforts the world of invention could ill afford to spare, but rather from a realization of the great space that separates the work of the amateur from that of the experienced automobile engineer. Where the beginner gets a mean effective pressure of sixty-five pounds, the expert will get seventy-five or eighty; for the beginner's piston speed of 600 to 800 feet, the expert's motor will show 1,000 or 1,200 feet; against the beginners' twenty-five to thirty pounds per horsepower, the expert will need but fifteen. And the modern four-cylinder motor, weighing fifteen pounds to the horsepower, will be doing its work long after the beginner's production of nearly double the weight has resolved itself into junk and checkered memories.

Why is this? Simply that the modern motor is the product of years of study and experience, backed by all the resources of the modern foundry, forge, and machine shop. Under the pressure of competition, stimulated abroad by the 1,000-kilogram racing limit, builders have found that it pays to build light motors, and to spare no expense to make them light. The fifteen-pound motor costs the builder double or treble what the twenty-five pound motor would, but it saves its cost in the rest of the machine, in fuel expense, and in the tire bill.

It has not been a simple task, this of doubling or trebling the power per pound of metal; but it has been an absorbingly fascinating one. To any one who understands a gas engine, to the amateur builder striving to conquer the heights, and perchance also to some readers who have wondered wherein might be found the value to justify the seemingly extravagant prices commanded by the products of the best-known firms, the article on "Evolutions of Light, High-Speed Motors," in this issue, may prove suggestive.

ARRESTING RURAL DECAY.

Much is written nowadays about the decadence of rural life and the decay of the old-fashioned virtues of simplicity, thrift, and self-reliance among our farming population. The fact itself is only too plain, and it justifies all the uneasiness which has been expressed as to its effect on the nation's future. But what is its cause? It is of little use to cry for a revival of the ancient spirit, if the things that produced it are gone, and if nothing can be found to take their place. Primarily it is due to the fact that the city offers opportunities which the country does not, and therefore draws to itself the men who a generation or two ago were the backbone of the rural communities. Secondarily, it is due to the gregarious instinct which draws men together even at the sacrifice of personal benefits.

But both the chance of gain and the pleasures of social intercourse depend on ability to communicate. A perfect system of intercommunication is not indeed the Omega of opportunity, but it is its Alpha; and many a young man who forsakes his ancestral acres because he feels himself capable of larger things would stay at home if he were less cut off from humanity there.

The value of the telephone and the trolley as stimulants of rural life can hardly be overestimated, but even more potent for good, will be a widely-spread network of improved roads. Its money benefits will be great, but its contributions to the nation's strength will be even greater.

The question of the best air pressure for a pneumatic tire seems still to be unsettled. That a tire pumped hard is more resilient than a soft tire is known: also that a thin-walled tire is more resilient than a thick-walled tire. But a tire wears out faster pumped hard than soft, and punctures more readily also. Were it not that a "soft" tire is liable to creep on the rim, thereby cutting off the valve stem, or even to pull bodily out from the grooves which hold the outer casing, the man who seeks to economize on repairs would always leave his tires a bit soft. As good a plan as any is to fit rather large tires, on which the specific pressure will be small; but he who does this must be careful how he drives on a muddy road.

It is only to be expected that the younger generation, taking its cue from the maledictions with and without reason hurled at automobilists, should conclude that the latter are fair prey for any one who can "'eave 'arf a brick" at them. Instances of stone throwing are reported every now and then, from both city and country; but no case of assault heretofore has been quite so serious as that reported in these pages last week, in connection with the Pittsburg Club run. The only way to meet attacks such as these is to exhaust every effort to locate the offenders and punish them in a way that will act as a public warning to others.

To avoid running over a dog shows no more than a decent spirit of humanity, provided the road is clear and one has room to dodge him. But one hears rather too frequently about well-intentioned people who, in trying to avoid the dog, put on brakes too suddenly, or turn the wrong way, and plunge or skid off the road, with resulting personal damage. If the dog is not of more than average size, and if the wheels strike him squarely, nothing usually happens—to the automobile. It isn't pleasant, certainly, but it is better than a wreck.

The annual election of officers of the Monmouth Automobile Club of Asbury Park, N. J., is to be held November 23.

CLUBLAND

Slated Officers Elected by A.C.A.

The regular ticket of officers of the Automobile Club of America put up by the nominating committee was unanimously elected at the annual meeting of the club, held last Monday at the clubrooms, at 753 Fifth Avenue, New York. As a result of the election, Albert R. Shattuck, who has been president of the club for three years, is succeeded by Winthrop E. Scarritt of Orange, N. J., a well-known metropolitan automobilist and formerly first vice-president. Henry Rogers Winthrop was elected to succeed Mr. Scarritt as first vice-president, and Harry Payne Whitney to succeed James Stillman as second vice-president. William K. Vanderbilt, Jr., and Jefferson Seligman were re-elected respectively third vice-president and treasurer.

Dave H. Morris and Sidney Dillon Ripley were re-elected governors to serve for three years, together with ex-President Shattuck, who succeeds Harlan W. Whipple. Mr. Whipple and Arthur Iselin were elected governors to serve for one year.

The reports of the standing committees were read and approved, and a vote of thanks was tendered Mr. Shattuck in acknowledgment of his services to the organization in his capacity as president.

The report of the membership committee showed that the club now has 464 members, of whom 395 own one or more automobiles. The total number of machines owned by the club members is estimated at 500, of an aggregate value of $1,500,000.

British Club to Control Road Contests.

At a club committee meeting held at the Automobile Club of Great Britain and Ireland, in London, on November 2, the committee passed a resolution that:

"It is not in the interests of automobilism that road trials should be held except by the Automobile Club of Great Britain and Ireland, affiliated clubs, and recognized bodies, and that no permits be given for any events which disregard this principle, and that all persons taking part in such unauthorized trials be disqualified from club competitions."

Chicago Club Election.

At the annual business meeting and election of the Chicago Automobile Club held on November 12, new officers were elected as follows for the ensuing year: President, John Farson; 1st vice-president, Dr F. C. Greene, 2d vice-president, W. G. Lloyd; secretary, J. W. Duntley; treasurer, James A. Charter; directors, Charles W. Gray (retiring president), T. J. Hyman, J. A. Ellis, William C. Thorne, Ira M. Cobe, B. H. Marshall.

When asked what his plans were for the coming year, Mr. Farson said: "It will be my earnest endeavor to try to secure for Chicago better streets. We have beautiful boulevards, but our streets are in very bad condition. It is the intention of the officers of the club to interest themselves in the condition of Chicago's streets. It is a shame that a municipality the size of Chicago, and with as great influence as it exerts, should have such frightfully poor streets within its borders, and we intend to start in immediately to work for the necessary improvements."

In speaking of the future plans of the club, Mr. Farson was enthusiastic over the prospect of a material increase in the membership. It will be the aim of the club to enroll as many members as possible, and to have all members work for the common good of automobilism, and support the city officials in their endeavor to carry out the laws governing automobiling. The club will not tolerate among its members or protect any person who indiscriminately violates the State and municipal speed laws. As yet no plans have been formulated for conducting tours or contests during next season, but it is admitted that the Chicago club will be more active than it has been in the past.

Annual Meeting of Springfield Club.

SPRINGFIELD, Mass., Nov. 16.—The Automobile Club of Springfield met November 13, at the Highland Hotel, where automobiles to the number of fifty were lined up in front of the entrance. Officers were elected for the ensuing year as follows:

President, H. C. Medcraft; Vice-Presidents, W. R. Weiser, H. B. Fiske and Dr. Hannum; Secretary, B. J. Griffin; Treasurer, W. L. Bunker.

The meeting was followed by a banquet at which some excellent toasts were delivered, interspersed by vaudeville. A number of new members was admitted and the membership is now over 100.

Perhaps one of the suggestions made by A. E. Cameron will prove interesting to automobilists elsewhere. In Springfield, part of Main Street was paved with wood paving blocks, a most desirable paving, especially from an automobile standpoint. This year, when it was proposed to pave an additional portion of the street, a few horsemen opposed the movement with the result that a compromise was reached—one side of the street being paved with the wood blocks while the other side is granite block. Notwithstanding that the wood block paving was opposed by the horsemen, it is this side of the street that is always taken by these same horsemen in preference to the other. It is probable that the automobile club will take some action favorable to the extension of the wood block paving.

The annual meeting and election of the Massachusetts Automobile Club of Boston, will be held December 12.

CLUB CATCHES CULPRIT WHO SHOT MEMBER IN THE HEAD.

PITTSBURG, Nov. 17.—The Automobile Club of Pittsburg is the first automobile organization in the world to offer a reward for a wrong-doer and capture the miscreant. The boy who shot the motorists during the club run between Pittsburg and Butler on November 7 was caught three days after the event and brought back to town by automobile. On Tuesday William A. Graff, the wounded man, took two county detectives, Waggoner and Roach, and a policeman out to the scene of the shooting in the same motor car he had used on the day of the run. In the neighborhood they caught George Hoffman, a thirteen year old boy of Etna and arrested him for felonious shooting.

It was found that Hoffman with several other boys had been shooting a .22 caliber rifle with long cartridges in it. He was reckless in the use of the weapon and had made a target of a mail carrier and pedestrians on the road before the motor car came along. The other fellows tried to stop their companion from firing directly at people, but when the youth saw the automobile dash into sight he caught up the rifle and fired just to show that he dared do it. It was sheer recklessness and not that he had any grudge against the motorists. Only one shot was fired and the same bullet went three times through one occupant's cap before striking into Mr. Graff's skull. The injured man is better, though he will be obliged to wear his head bandaged for some weeks yet. The $100 reward was promptly paid by the club to the capturers. James Francis Burke, a club member and one of Pittsburg's most brilliant young lawyers is prosecuting the case free of charge to the club. The boy may be sentenced to seven years' imprisonment, or fined, or have judgment suspended.

The Automobile Club of Pittsburg is proving itself an active and virile force in this city in protecting the rights of motorists and promoting the sport and trade. The added impetus is seen in the great number of new machines purchased and the new auto stables. By actual count, thirty-seven new stables have been built this season. F. T. F. Lovejoy's is said to be the finest private auto house in the United States. James F. Burke has just completed a plain but artistic up-to-date stable constructed of Ligonier stone and most modernly equipped. George M. Laughlin in Woodland Road has a most luxurious stable built in the half-timbered style of architecture. To Robert King in Negley Avenue is due the introduction of the motor stable in Pittsburg. In 1889 he began to look for plans for one, but even in New York at that time there were very few drawings for such a structure, and he came back home and designed his own. This pioneer stable has every facility for the housing and care of the modern horseless carriage, and many Pittsburg stables have been designed from it.

Overland trips still continue during the autumn. Mr. and Mrs. E. E. Keller have just returned from a trip to Rochester, N. Y., and return in their Haynes-Apperson car. The first day they made 145 miles, going by way of Butler to Cambridge Springs and Waterford. Within five miles of their stopping place for the night their car unfortunately plunged into a rut which proved to be a quicksand. One front wheel became entirely submerged and the others were buried to the axles. After trying for some time to start the car Mr. Keller went round a corner where he thought he had heard voices and there found a country grocery store about which nearly a dozen men were congregated. Everybody came out to give a lift, the power was turned on and the car bounded out.

A popular run is from Pittsburg to the Allegheny Country Club in Sewickley, returning in the evening. Another favorite rendezvous is the Pittsburg Country Clubhouse situated just off the Beechwood boulevard.

On Thanksgiving morning motors and horses will give each other spirited brushes in the whirl to the scene of a drag hunt. It is a unique sight at this annual festivity to see the motor cars lined up on one side the fence and the brakes and coaches on the other, the guests watch the drag from the clubhouse veranda and later tramp over the fields.

Club Talks on Individual Cars.

The fall announcement of the Long Island Automobile Club of the program of the entertainment committee for the winter, states that arrangements have been made for a series of "Short Talks on the 1904 Touring Cars," to be given at the clubrooms, at 32 Hanson Place, Brooklyn. Not only members of the club, but other automobilists are invited to attend these "talks," which "will prove instructive, entertaining and of value to those interested in the sport." The car to be "talked on" will be on exhibition during the same evening in the club garage, under the clubrooms, where a competent man will be at hand to answer all questions and show the features of the machine.

The program is as follows: Wednesday evening, November 18, White Steam Touring Car; Wednesday evening, December 2, Toledo Touring Car; and The Rambler; Wednesday evening, December 16, The Franklin; Wednesday evening, December 23, The Waterless Knox; Wednesday evening, January 6, The Ford; Wednesday evening, January 13, The Thomas; Wednesday evening, January 27, Haynes-Apperson Runabout.

The annual election of the Long Island Club, will be held in the Hanson Place clubrooms during the second week in December.

OBSEQUIES OF McCLYMONDS.—NEW BLOOD FOR STEARNS CO.

CLEVELAND, Nov. 14.—Louis K. McClymonds, president of the Peerless Motor Car Company of this city, died at his home in South Orange, N. J., last week. Death followed a stroke of paralysis sustained two weeks ago. The body was taken Wednesday to Massillon, O., for burial, and nearly all of the office force of the Peerless company attended, the factory being closed for the day. Mr. McClymonds had never been active in the management of the Peerless company, although he maintained a close supervision over it. He formed the Peerless Manufacturing Company which originally manufactured wringers and later drifted into the manufacture of bicycles. Four years ago, when the bicycle business began to wane, Mr. McClymonds, appreciating the possibilities of the automobile industry, took a contract for the manufacture of De Dion motor parts. With the experience gained in this work, it was but a step into the ranks of full-fledged manufacturers of automobiles. Mr. McClymonds was for a number of years general manager of the Cleveland Rubber Works, whose plant adjoins that of the Peerless company. When the rubber combine was formed some years ago he removed to New York as its executive head, continuing in that capacity until last year, when he retired from business and purchased a large farm near Morristown, N. J. It is probable that the death of Mr. McClymonds will make no change in the affairs of the Peerless Company. The active management of the business has been for a number of years in the hands of L. H. Kittredge, who successfully combines the duties of secretary and general manager.

Mr. Roy York, a prominent stock broker and member of the Cleveland Stock Exchange, has obtained an option on a block of the stock of the F. B. Stearns Company. He will assume, for the time being, the duties of sales manager for the company, and if pleased with the outlook he may decide to permanently withdraw from the conflicts of the bulls and the bears. The arrangement will undoubtedly prove a good thing for the Stearns company, as Mr. York is highly connected and has a large circle of acquaintances.

Fall Weather Draws out Motorists.

MINNEAPOLIS, Nov. 14.—Local motorists have taken advantage of the fine autumn weather in large numbers, and more country runs are being made now than ever before. These are not organized runs, the parties going independently in their individual cars. The roads are in excellent condition, though somewhat dusty, as there has been little rain. The increasing interest in such runs has resulted in many inquiries regarding ma-

chines at the agencies, and the indications now point to many sales during the balance of the fall and winter, so that the purchasers can have their cars for early spring.

Mayor Haynes of Minneapolis, in a communication to the city council, urged the adoption of an ordinance regulating the speed to eight miles an hour in the business district. The Mayor says that he has received many complaints over reckless driving on the part of a few owners. The matter has been referred to a special committee.

Incorporations.

The Pennsylvania Motor Car Company, Washington D. C., capital stock $200,000. E. M. Pine, R. S. Donaldson and E. W. McCormick, incorporators.

The Baldwin Motor Company, Baldwinville, L. I., capital stock $10,000; to manufacture gas engines. H. Wortman, H. Coakley and William Coakley, all of Baldwinville, incorporators.

The Columbia Power Company, Minneapolis, Minn., capital stock $1,000,000. Object: To manufacture motors and motor vehicles. William S. Herber, E. Edward Woodbury and Fred W. Bates, incorporators.

The Paterson Automobile Storage & Exchange Company, Paterson, N. J., capital stock $25,000; to manufacture automobile motors. Levi E. Von Sickle, Frank L. Habben and Jacob Van der Clock incorporators.

The Speed Indicator Company, Minneapolis, Minn., to exploit the invention of E. J. Hodgson, an architect of that city. The officers are: President, Frank M. Joyce; vice-president, Harold Johnson; treasurer, J. H. Field, and secretary, E. J. Hodgson.

The Ford Automobile Company of St. Louis has been incorporated to manufacture and deal generally in automobiles in St. Louis, Mo. The incorporators are Jordan W. Lambert, Lewis Spindler and Samuel McPhecters. The capital stock is $2,000.

E. P. Breckenridge, J. R. B. Rauson and associates in the Snell cycle factory in Toledo, O., have incorporated the Consolidated Mfg. Co., under Arizona laws, and propose to manufacture automobiles and bicycles in Toledo. The capital stock is $600,000.

The Hasbrouck Motor Works, Groton, Conn., with capital stock $75,000, to manufacture automobile, marine and stationary engines. The incorporators are A. M. Stephen and Stephen A. Hasbrouck of West Mystic, C. D. Holmes of Mystic, and William K Holmes, Jr., of New York.

Correspondence

Autos in Cemeteries.

Editor THE AUTOMOBILE:

I have noted, with much surprise, the attitude shown our automobile friend, who was barred from entering Hollywood Cemetery, Richmond, Va. While the rules of all cemeteries are for the benefit and protection of lot holders, the rule mentioned seems foolish. It is only a question of time when all cemeteries will have to throw up their hands for the advanced ideas of this twentieth century.

The writer has been general manager for one of New Jersey's leading cemeteries for the past fifteen years and is speaking from experience. The croney ideas of some cemetery superintendents and managers are a detriment to themselves and to the community. I question if our friend has a lot in Hollywood Cemetery, whether, by lawful authority, he can be ejected. However, I would willingly make a test case of it. We have all kinds of conveyances coming in and going out of our place, and some of our best people visit here in automobiles.

I am an advocate of any advancement, and especially the automobile. All cemeteries, no matter how large or small, may as well let down their bars to progress. Some cemeteries seem slow in grasping new lines and this is evidently the case at Hollywood.

G. E. RHEDEMEYER.

Camden, N. J., Nov. 16.

Dry Cell Construction.

Editor THE AUTOMOBILE:

Sir:—Is there any good reason why the Mesco and Columbia dry batteries, which are good strong cells for automobile work, cannot be made more durable?

The zinc shell as it is now made is soldered. The joint of course starts small independent action and that starts leaking and vaporization of the contents by the joint giving away. I have found this so almost invariably. It seems to me that a zinc shell could be made of seamless tubing, thus avoiding a soldered joint or lap. Better still, the whole shell could very easily be stamped or pressed out in one piece as the common cartridge shell is pressed out.

Is there any reason why this change in construction would not be vastly superior and also make the life of the battery considerably longer? The makers would certainly save also in cost of manufacture.

L. F. BUFF.

Jamaica Plains, Mass., Nov. 9.

The construction proposed above would probably have found universal adoption long ago but for the fact that zinc is an impossible metal to draw. It is both brittle and weak, and useless for drawing unless alloyed with copper or some similar metal which would unfit it for battery purposes. Ordinary stamping operations can be effected by heating the sheets, and also heating the dies by running hot water through or over them; but this would amount to little when it came to drawing a shell of length two or three times its diameter.

Car to Ford Rivers in Jamaica.

Editor THE AUTOMOBILE:

Please give me some information on the relative advantages of steam, gasoline and electricity in a country like this where there are no facilities for special repairs, at least there are no garages, etc. Of course ordinary repairs could be done. I want a runabout which must be able to ford rivers and climb hills. Some grades here are one in four. I suppose the choice will lie between steam and gasoline. I am glad you promise to give instructions in the operation of motor cars during the coming year.

J. P. PROVAN.

Monklands, Cedar Valley P. O., Jamaica.

We recommend a careful perusal of our account of the recent Endurance Run and confidently leave the rest to those among our readers who manufacture automobiles.

A Question of Power.

Editor THE AUTOMOBILE:

Sir:—Will you please state the advantages of a double cylinder 5 x 6 engine in a runabout, over a single cylinder 5 x 6, in relation to operation, repairs, roads and hills. Please state also the advantage of a single cylinder 5 x 6 under the same conditions.

H. W. DORMAN.

Ashtabula, O., Nov. 10.

If our correspondent really means what he says, it is our duty to remind him that a double cylinder 5 x 6 engine is a pretty powerful affair. Any good designer can get 16-hp. out of it, and it will hardly weigh less than 300 pounds. The vehicle which can carry such a motor at a 16-hp. speed will hardly fit the conventional definition of a runabout, and comparison of it with the real runabout may be summarized in the remark that it will be pretty fast.

If, on the other hand, our correspondent's intention is to double the power in a runabout which he already has, our advice must be that of *Punch* to intending benedicts—"Don't." No runabout built would stand it.

Renting of automobiles is said to have been highly profitable in New York lately. One concern states that its receipts from this source in a single day amounted to about $200. The customers are mostly visitors from the middle and Western States desirous of seeing the metropolis in style.

News Notes and Trade Items.

Prince Henry of Prussia has ordered a 1904 Locomobile steam surrey, after having used a car of the same manufacture during the past year.

L. J. Ollier, who was formerly head-salesman for A. C. Banker in Chicago, has been made manager of the Chicago agency for the Cadillac.

New York quarters for the Crestmobile agency have been secured at 154 West 38th Street. C. P. Walker, known to golfing fame, will be in charge, assisted by R. A. Rutherford.

Alderman Ticknor of Rockford, Ill., has taken the local agency for the Ford cars. Rockford claims to have more automobiles in proportion to population than any other city in the State.

F. E. Avery has taken out a building permit for the erection of a two-story automobile factory on Franklin Avenue in Columbus, O. The estimated cost of the factory and equipment is about $35,000.

The Columbus Motor Car Company of Columbus, O., has closed a contract for from 30 to 50 automobiles for a Russian concern. The first cars for this shipment will be completed within a couple of months.

The Quinby & Co. automobile body department is to be moved from the Smith & Mabley establishment in New York to new quarters at 140 West 38th Street, above the garage of E. B. Gallaher.

The Independent Automobile Association of America now has eleven members, according to Secretary-Treasurer C. C. Boynton, but neither the Thos. B. Jeffery Company nor the Ford Motor Company is a member.

British Consul Sauzier, at Tamatave, Madagascar, states that there is now a regular automobile passenger service between that place and the capital, Antananarivo, supplanting the old system of palaquin transports.

George W. Blackmore of Painesville, O., leading automobile dealer in that place, has closed a contract with the Winton Motor Carriage Company whereby he will handle the Winton in Lake, Geauga and Ashtabula Counties.

Oscar S. Lear, Columbus, O., has disposed of his bicycle and sporting goods departments to Wickliff, Funk & Company, and will henceforth conduct an automobile business only. New quarters have been taken at Fourth and Gay Streets.

James J. Hinde, president of the Sandusky Automobile Company of Sandusky, O., made a creditable run from Columbus to Sandusky a few days ago with one of their 1904 models. He left Columbus at 11.15 A. M., and called on agents in Delaware, Marion and Bucyrus, arriving in Sandusky at 7.30 P. M. The actual running time was about six hours for the 120 miles.

The Vehicle Equipment Company, Brooklyn, N. Y., has just delivered to The Geo. Wiedman Co., brewers, of Newport, Ky., three five-ton electric beer trucks, and to the Anheuser-Busch Brewing Association, St. Louis, Mo., twenty similar trucks.

The Warner Differential Gear Company, Muncie, Ind., has completed a new addition to its factory and has added considerable new machinery to its equipment, greatly increasing the facilities for production.

The Holley Motor Co., Bradford, Pa., has been admitted to active membership in the National Association of Automobile Manufacturers, while two new associate members are the Rose Mfg. Co. of Philadelphia and the National Carbon Co. of Cleveland.

Norris H. Mason, of the Société Franco-Americaine D'Automobiles, sails for France November 19 and upon his return will be accompanied by E. Lamberjack, A. Clement and others prominent in French trade circles, all of whom are coming to America to attend the shows.

The Ray Automatic Machine Company of Berea, O., have sold their automobile interests to the Briscoe Manufacturing Company, Detroit, Mich., and will henceforth devote their entire efforts to the manufacture of nuts, bolts and automatic machines.

The Richmond-Jarvis-Caro Company, Grand Rapids, Mich., has closed a contract with the Ford Motor Company, of Detroit, to represent the manufacturer throughout the territory in Michigan north of Muskegon County. The company also has the agency for the Rambler cars.

The Andersen-Millard Company of Omaha, Neb., wholesale dealers in vehicles, have added automobiles to their line and are at present agents in Nebraska and the western tier of counties in Iowa for the Cadillac, Autocar, and Packard gasoline motor vehicles and the White steam car.

E. B. Gallaher has secured thirty-five feet of additional frontage on West 38th Street, New York, and will increase the frontage of his salesrooms for the Georges Richard-Brasier to seventy-six feet—more than any other automobile establishment on the street. The additional space will be used as a storage-room.

Charles Schmidt, designer for the Packard Motor Car Company, left Detroit several weeks ago for Europe, where he is making a study of recent foreign automobile developments. At the present time Mr. Schmidt is in Paris, where he is well known in automobile circles, having been closely identified with the industry as designer for the Mors company for several years prior to his first visit to this country.

The Overton Manufacturing Company, Topeka, Kans., celebrated its opening on Monday evening, November 9, with an informal reception in its offices at 707 Quincy Street. The Topeka Automobile Club held a meeting at the same place and time, and later a cavalcade of automobiles left the company's plant and paraded the principal streets of the city.

The Columbus Carriage and Harness Company of Columbus, Ohio, has completed its first automobile. The company is using an air-cooled double cylinder motor with bevel gear drive. Three varieties of cars will be made A light runabout, a light delivery wagon and a doctors' closed phaeton. In the runabout just completed, a member of the firm recently made a run from Columbus to Chillicothe, 51 miles, in one hour and 35 minutes.

Having won the climbing contest on the Eagle Rock hill two years in succession, the Locomobile Company of America will not compete in the same event on Thanksgiving Day this year, but announces that if the record of its steam cars are beaten it will endeavor to establish a better one. The best time made by a Locomobile on Eagle Rock hill was 1 min. 53 sec., on December 2, 1903, in a test timed under the direction of the Automobile Club of New Jersey.

The factory of the White Sewing Machine Company has not yet started on 1904 product, although it is expected that in about two weeks the work on the new cars will be started in earnest. The officers of the company are not saying much about the new machines and very few pionters can be obtained as to the changes that will be made. The output this year numbers close to 600 steamers. A considerable number of these were sold in England and on the continent through the London branch store, which is in charge of Walter White.

The Wilson & Hayes Mfg. Co., formerly of Cleveland, O., has purchased the Michigan Tin Can Company property at 773-777 Bellevue Avenue, Detroit, Mich., consisting of a large, two-story brick factory, nearly new, and the plant has been removed to the new property. The machinery from the old plant in Cleveland has already been installed, and considerable new machinery is being put in, so the company is now in a position to meet any demand on its ability as a producer of metallic bodies, fenders, bonnets, radiators, tanks and metal specialties. H. Jay Hayes, manager of the company, has taken up his residence in Detroit, and the company's headquarters will be at the factory